POPULAR

SPRING FITTING OUT - PART I

# BOATING

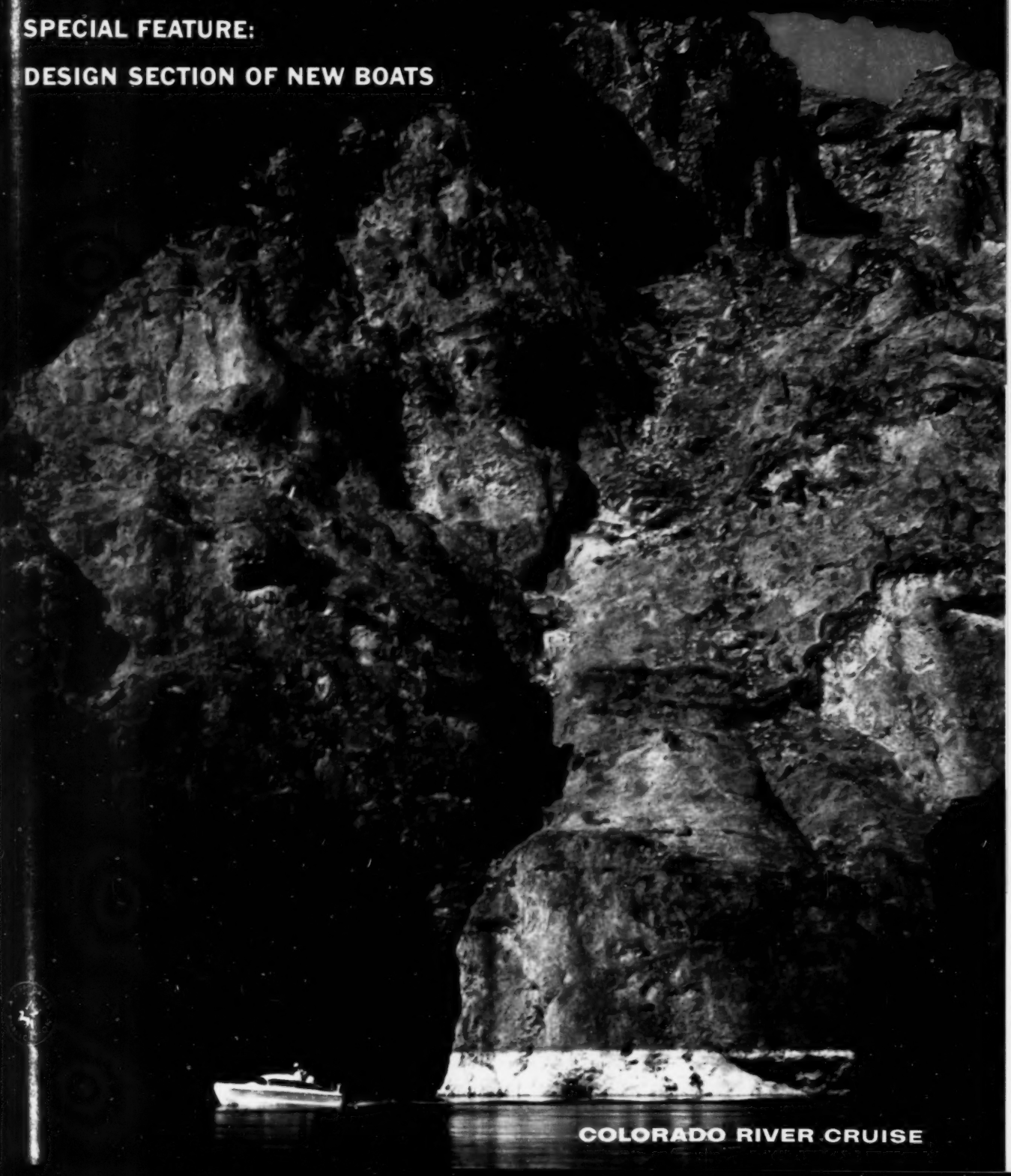
WORLD'S LARGEST SELLING BOATING MAGAZINE

APRIL

50 CENTS

SPECIAL FEATURE:

DESIGN SECTION OF NEW BOATS



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*New Super Sea-Horse 35, electric starting . . . $625*

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## ONLY A SEA-HORSE HAS Dynautical Design

Johnson's new Dynautical Design goes better with your boat. That's obvious at a glance. Its clean, shipshape look compliments every craft it has been tried on—blends in with good nautical design. Even the shade of white used was selected to look good with every known color.

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Also new this year is the starting motor on Sea-Horse Super V-50 and 35 hp models. It's far more powerful, yet it uses *less* current. Your battery will last considerably longer. (Electric starting is also available for the new Sea-Horse 18.) And there's more! The kind of special "touches" you've come to expect in a Johnson, making these new Sea-Horses the quietest, smoothest running, most dependable outboard motors afloat. See them now at your Johnson dealer's. 3 through 50 horsepower, priced from $160. f.o.b. factory, subject to change. You'll agree that any one of the new Sea-Horses is worthy to bear the honor of being Johnson's two-millionth motor (expected sometime in 1959). This incidentally, will be a new record in outboard motor manufacturing—another Johnson first!

Johnson Motors, 592 Pershing Road, Waukegan, Illinois

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1909 1959

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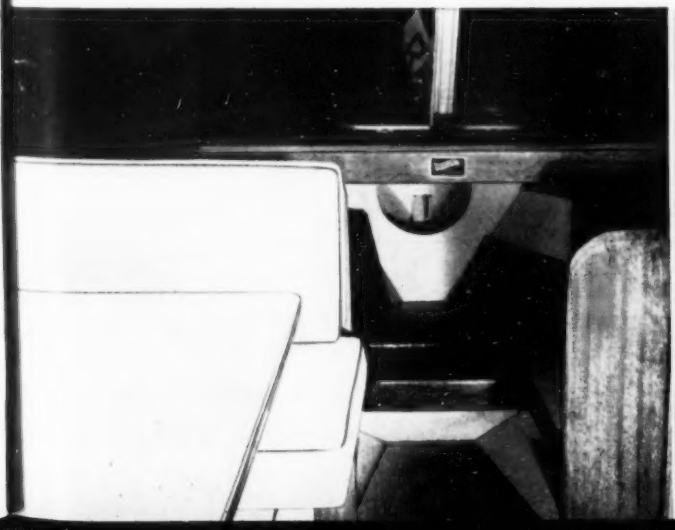

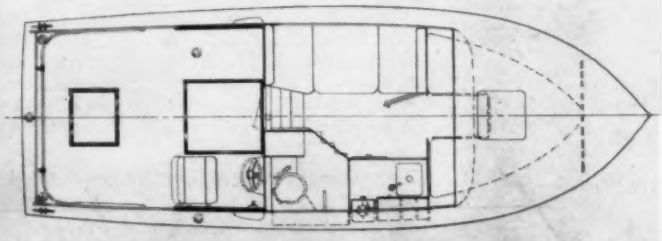

# RICHARDSON

*Cruisers of Tomorrow*

POPULAR
# BOATING

THE MAGAZINE FOR BETTER BOATING

APRIL, 1959
VOLUME 5, NUMBER 4

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Red Wall of the Grand Canyon on this month's cover was taken by Charles C. Niehuis from a cave across the Colorado River. See story, Page 144.

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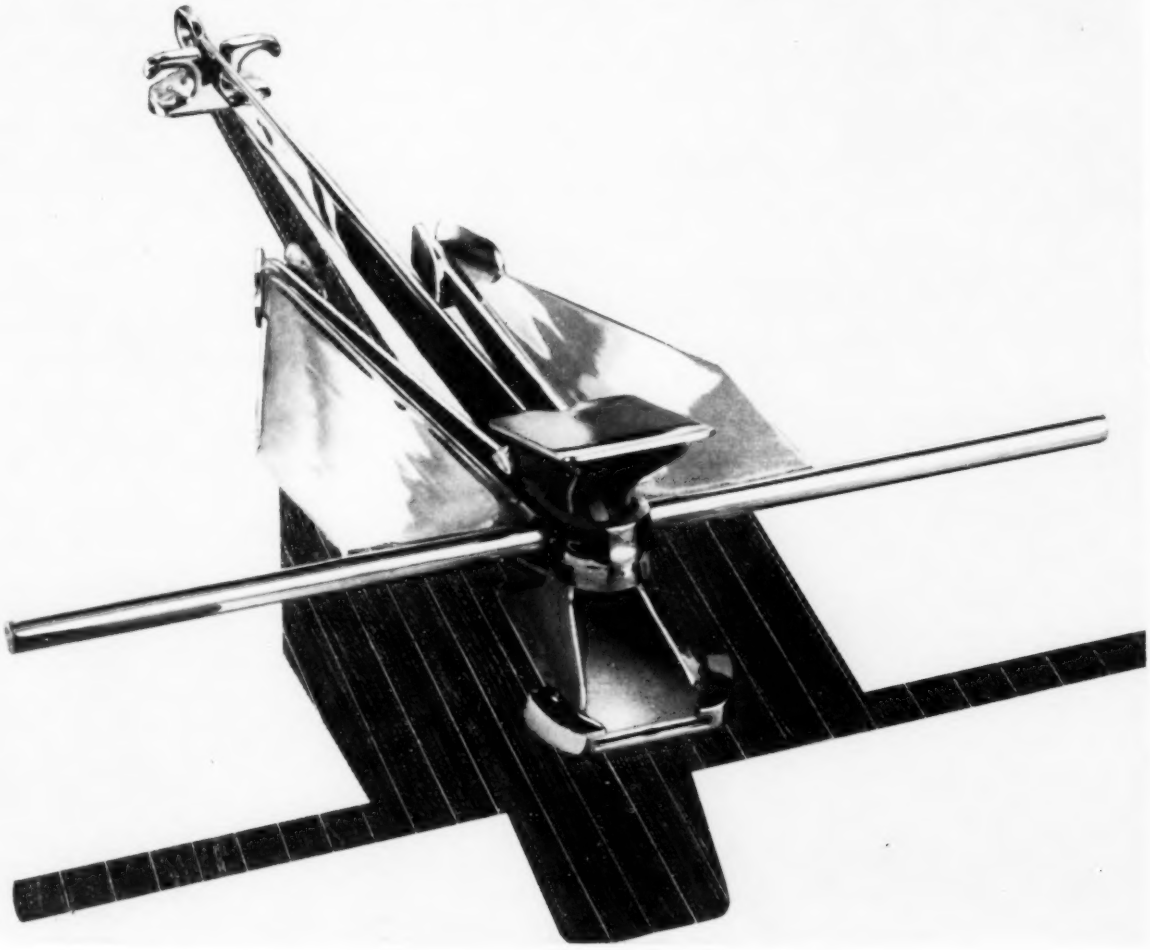

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**it's a Danforth® lightweight type anchor**

**because...**

**pound for pound, dollar for dollar,**

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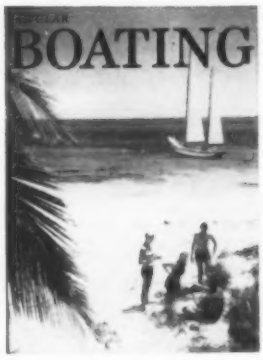


•

NAUTICAL FASHIONS

New sports clothes for boatmen and women, plus fine accessories for the boat.

•

PORTLAND MARINA

Weather and fuel problems force leading yachtsman Carleton Mitchell to bring his boat into a British naval base, a place obviously off-limits to yachtsmen.

•

FAST-WATER BOATING

A hunting and fishing guide from Alaska gives techniques for outboard boating in shallow and treacherous rivers.

•

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Special buying guide and directory of deck hardware, engine accessories and other equipment includes illustrations and prices.

•

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Boating and boat facilities in this 32-mile lake in the Adirondack mountains. It's a haven for yachtsmen with small boats, offering fishing, swimming and camping, as well as attractions ranging from dude ranches to ghost towns.

PLUS:

BOAT TEST
"I LEARNED . . ."
BOATMAN OF THE MONTH
QUESTIONS & ANSWERS
AND ALL REGULAR
FEATURES, COLUMNS
AND DEPARTMENTS

# FROM THE EDITOR—

## "IMPROVING THE BREED"

EARLIER THIS SPRING there were rumors throughout the boating industry that a number of large boat builders were formulating plans to set up an independent test station for impartial performance checks of their craft. First reports indicated that a number of the popular outboard runabouts would be given extensive underway tests with various power plants, and each company would then receive a report on each model he had submitted for examination.

It was proposed that experienced design engineers and drivers would tell the client company in a confidential report just how its craft stood up under a number of hours of hard driving, how all handling characteristics rated in rough water and in high speed maneuvers, how effective was the amount and positioning of the flotation in the boat, what horsepower motors and passenger carrying capacity the craft could safely handle, and any structural deficiencies that needed correction.

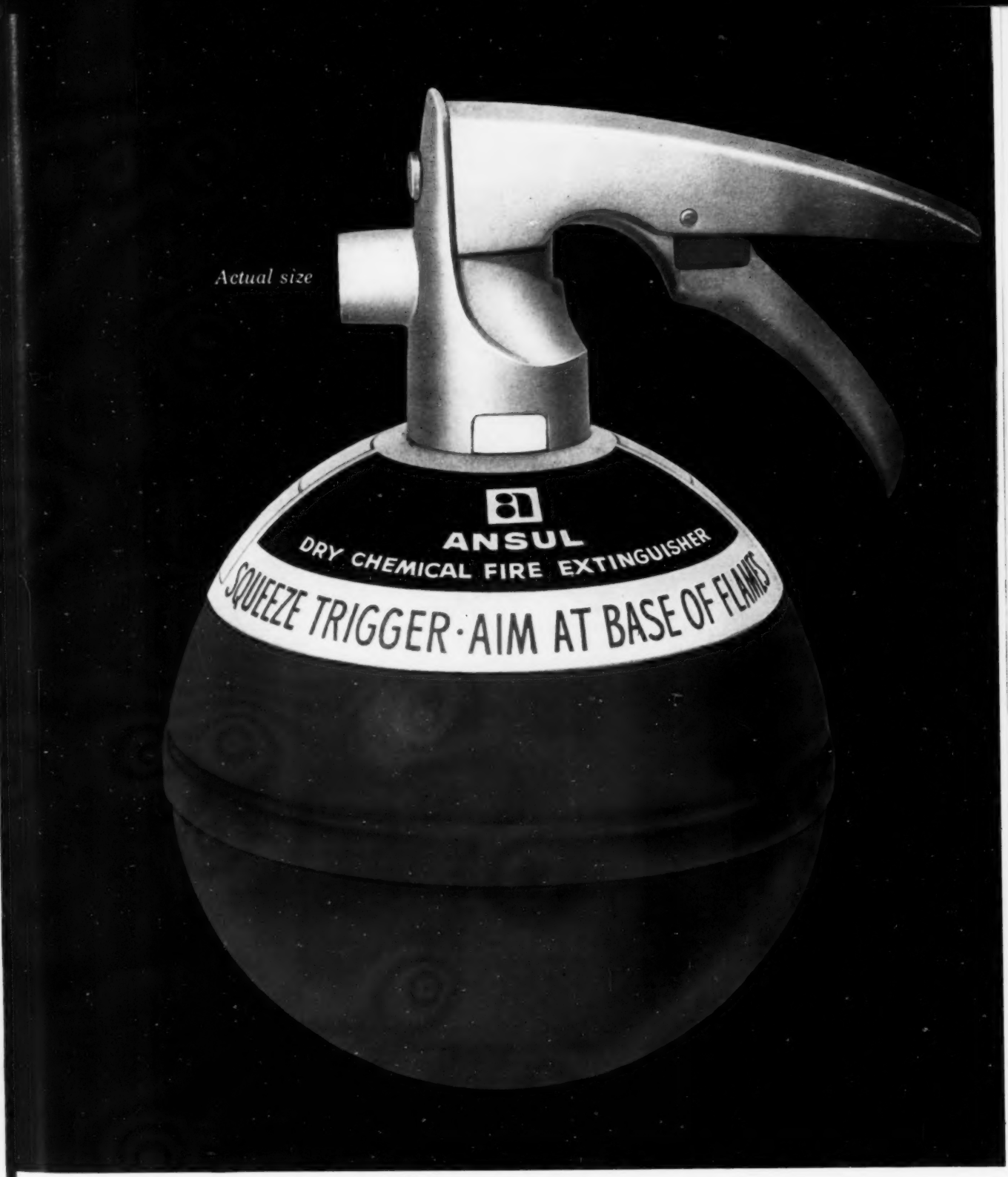
A boat which could successfully pass all tests would receive certification to that effect from the testing board; a model which needed changes could be resubmitted after corrective action had been taken by the company that made it. It was envisioned that boats for test would be nominated by model by the manufacturer, but chosen at random from any dealer's stock. While the test board would be jointly supported by a number of manufacturers and by the quite substantial fees necessary to cover the costs of such tests, the board would be designed to be independent so that pressure could not be brought to bear by individual companies.

There is no dire need at present for such an organization. Boats produced by reputable companies today have justly earned the confidence of the pleasure boating public. But such a testing program could be of great benefit to the industry as a whole. New uses of plastic, wood, and metal could be given much more extensive and elaborate tests over a longer period of time, and with the merits of various construction methods systematically evaluated so that a member company could receive suggestions from the test board's confidential report which otherwise might have taken the company years to develop, if it had to solve all problems independently on its own. While individual automotive companies are now large enough so that each may maintain huge test and development centers, few boat companies are big enough at present to undertake similar projects single handed.

POPULAR BOATING watched with great interest the progress of this boat testing plan, industry sponsored, and took pride in the thought that our own test series which examines boats from the users' point of view might have helped inspire this move. We were flattered to be confidentially consulted by various leaders of the pleasure boating industry for this magazine's counsel on the organization and implementation of the plan. There is nothing new about testing, acceptance, and approval plans, but never before has the establishment of a test board been proposed which could have a free hand to evaluate impartially, on request, any boat in America, and might grow, because of its organization, to become a test bureau of standards with the backing of the entire pleasure boating industry.

Unfortunately, it now appears there was not enough unanimous agreement and support within the industry to get the plan underway. Perhaps the pleasure boating business cannot yet afford the expense, time, and non-competitive cooperation which such a plan requires. Surely pleasure boating will progress without it, but the prospect that better, safer, more seaworthy boats could more rapidly result from such a plan should keep the proposal from an untimely death and speed the time when one of the existing industry organizations or a new one can offer again a similar proposition which will aid every boat, accessory, and motor manufacturer to make better products for the sport.

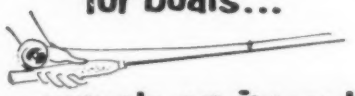
—WM. TAYLOR MCKEOWN




# FIRE

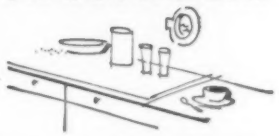
ARE YOU REALLY PREPARED?

for boats...



and sports equipment

for furniture...



for counter tops...

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Elmer's Waterproof Glue is impervious to weather, acid, mold, alkalis, even boiling water. So waterproof, it exceeds Military Specifications MIL-A-397B (class 1) for marine laminating.

Available in all sizes from ¼ pint cans up. The Borden Company, 350 Madison Ave., New York 17, N. Y.

*Borden's Products* for the Home Handyman


## READERS REPORT:

### UNUSUAL FISHING BOAT

Recently, while fishing on the St. John's River near Sanford, Fla., I noticed a custom-built semi-V fishing boat that was quite unusual. It had tackle boxes, ice chest, tool compartments and a foam-rubber arm chair all built-in. The insignia on the boat was a leaping fish with the words "Warr Built" on the sides.

I have tried to find out more about these exceptionally well-constructed boats, but no one seems to know who to contact. Do you have any information on these boats?

Jack L. Pyle
Maitland, Fla.

*These boats are built by Myron Warr, whose shop is on the St. John's river just south of Welaka, Fla.—Ed.*

### SAILING CLUB

Last fall a group of students at Duke University decided to form a sailing club. Since then we have formulated a charter, and are presently working on a constitution. We have written a few schools, asking for advice on how to get started, but we have not received many replies.

Duke does not have a lake nearby. The nearest lake for sailing is an hour's drive away, but the drive is easy as well as fun. A great many of our members have boats they can bring down, but we will not have a class this way as the boats are of all different classes. We feel, however, that these will be adequate for practice for us until we get money to purchase a fleet. Our problem right now is scheduling races with other schools. Naturally we would not be able to have races here this year, but we hope very much to be able to participate in such events at other schools.

It is our wish that you please print this letter in your next issue so that other colleges throughout the country may hear our plea and help us out. We are all greatly interested in sailing and do hope that others will cooperate with our efforts to get our organization started. We guarantee we have enthusiasm; all we need is a race in which to show it!

Ann Giffhorn
Correspondence Chmn.
Duke University
Durham, N. C.

### SPINNAKER GYBE

I was particularly interested in Carleton Mitchell's pictorial story about the America's Cup defense in the December issue, and in the article about Briggs Cunningham. There was one very small point with regard to the former that I would like to mention. In the picture on the left of page 38 we see Sceptre, with her main, as you say, trimmed in flat.

Looking closely, it seems as if she is carrying both main and spinnaker booms on the same side, to starboard. Considering what the N.A.Y.R.U. rules say about this sort of thing, it seems to me that Sceptre is in the midst of gybing, having gybed one boom and being about to gybe the other. This, I respectfully submit, would explain why her main is trimmed so flat. Incidentally, her crew is doing a beautiful job with the spinnaker in the bustle and confusion of gybing.

David F. Barr
Oshawa, Ont.

### HELP REFIT DREAMBOAT

I am one of the thousands of sportsmen in the middle income bracket who have dreamed for years of owning a boat, but have felt that we couldn't spend the money on a luxury for ourselves and deny our family the things that this expense would entail.

So I and thousands like me find a boat, either used or salvaged, and try to do the refitting and repairs ourselves. That's the only way we manage to realize our dream and not deny our family the things they need.

But we poor landlubbers don't know a darn thing about the repairs of a boat. Heck, we can't even repair our own cars. However, we were content to bring our repairs to an auto mechanic. But our Dreamboat, we want to do-it-ourselves. But how? What method to use? So we buy boat magazines. I have a subscription to one in which most of the articles are devoted to the plushy yachts and their cruises to Samoa, Portugal and Timbuktu. Who the heck is interested in those places? We 20- to 30-foot boatmen who make up the greatest percentage of inboard owners are interested in how to keep up or how to repair our Dreamboat. Most of the guys today that buy in the inboard class don't have the faintest idea on how-to-do-it.

I have gotten quite a few ideas from your last three issues and am sure there are thousands of novices like myself that have been helped. Can't you give us guys a lot more of this type of help in each issue? We're not interested in romantic cruises to far-off lands. We are satisfied to cruise our own back waters. Help us to refit Dreamboat so that we can get there.

Dr. Herbert A. Kaylo
Metairie, La.

### SEAMANSHIP BOOK

When can we expect the first volume of your book combining all of the articles your magazine has published on seamanship?

I am sure that I am not alone in my

(*continued on page* 14)

# ANSUL MONITOR

## 2½ POUND DRY CHEMICAL FIRE EXTINGUISHER

Minutes . . . seconds . . . they really count in a fire emergency. Minutes . . . seconds . . . they can mean the difference between an easily-smothered blaze and a raging inferno. Experienced yachtsmen know the terrible danger of fire at sea. Yet if a fire broke out on your boat, would you really be prepared? Would you have the newest and most effective fire protection? The U.S. Coast Guard announced in a new regulation that it will no longer approve carbon tetrachloride extinguishers for new installations or replacement of existing equipment. All carbon tet and other vaporizing liquid units are outlawed completely after Jan. 1, 1962 . . . and must be removed from your boat.

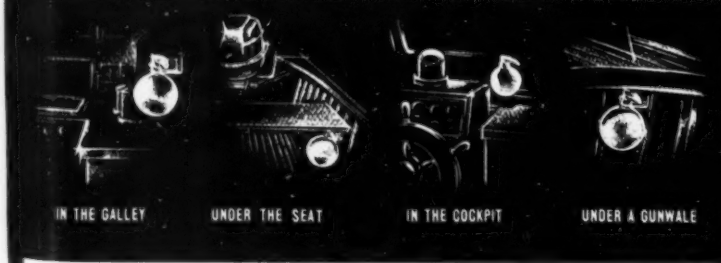
The unique ANSUL MONITOR 2½ pound dry chemical extinguisher was specially created to fill this need in marine fire protection. It packs fire-killing power equal to 8 one-quart carbon tet extinguishers.*

**EXCLUSIVE! IMMEDIATE ON-THE-SPOT RECHARGING** You don't have to be without adequate fire protection—not even for one minute! After using a MONITOR, it's a matter of seconds to unscrew the expended charge and replace it with a factory-filled, U.L. approved recharge unit. Only Ansul offers the U.L. approved recharge!

**EFFECTIVE NON-TOXIC DRY CHEMICAL POWDER** MONITOR is charged with fire-killing dry chemical. No poisonous fumes or dangerous chemicals. ANSUL dry chemical is non-abrasive—completely safe to use on electrical equipment. Does not require periodic servicing! **PERFECTLY BALANCED FOR EFFECTIVE ACTION** No cumbersome two-handed operation. MONITOR'S unique shape was deliberately engineered for effectiveness in emergencies. Operation is simple: squeeze the contour-grip and smother the blaze with a blanket of dry chemical.

**NEW SPACE-SAVING SHAPE** The sparkling new MONITOR was styled with space-saving compactness, too. The spherical design allows you to mount the MONITOR unobtrusively on board any boat. Its compact, light-weight features make it ideal for the outboard runabout and small cruiser.

*Underwriters' Laboratories Rating Tests




This seal appears only on Coast Guard approved extinguishers—ANSUL portable, semi-portable and large stationary fire equipment.

Please send information on the new MONITOR and a copy of the Ansul Marine Catalog D.

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# 365 DAYS GUARANTEED *Glamour-Color*

## NEW—the Smash Hit of the Boat Shows!

—and it's easy to see why! Glamour-Color has the same long-lasting, extremely glossy, abrasion-resistant, quick-drying features of Sudbury's exclusive 365 Bright-Work Finish. It is stainproof—you'll find no scupper stains on topsides. Makes ordinary oil paints obsolete. Looks more like porcelain...has such a long life it's quite probable the average boat owner won't have to refinish his boat for two or three years—way beyond the record-breaking Sudbury 365 day guarantee on the label. Can be used over fibre-glass without any primer.

Made in seven exciting, lustrous colors for the man who wants the best—*Mellow White, Blonde Yellow, Seafoam Green, Sapphire Blue, Flame Red, Smoke Gray,* and *Sable Black*—Glamour-Color is a sound investment for every boat owner. Popular quart size **$7.50.**

FREE with every quart—$1 sample can of 365 Brush Cleaner.

# 365 DAYS GUARANTEED *Bright-Work Finish*

New improved Sudbury 365 Bright-Work Finish keeps bright work sparkling new all season long. Dries so fast you can apply 5 or 6 coats a day. Tough, glass-like 365 Bright-Work Finish takes to bare wood, old varnish like magic; dries dust-free in half an hour. Your bright work stays bright thru months of heavy use, continued exposure. Not affected by blistering sun, salt spray; impervious to cigarette burns, alcohol stains. This amazing finish may be brushed or sprayed in any climate in temperatures from zero to 100° without chilling or warming. No sanding needed between coats. Abrasion resistance is 76% that of plate glass, yet its remarkable flexibility prevents chipping, crazing. Even an amateur can turn out professional work. Pt. **$3.50;** Qt. **$6.00.**

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# 365 DAYS GUARANTEED *Bottom Paint*

You'll want to save both time and money this year by saving yourself the troublesome bother of bottom fouling. Use Sudbury's 365 Bottom Paint on your boat and enjoy 365 days of care-free protection as well as more time topside. While ordinary paints require periodic inspection, time-consuming haulouts, scraping and repainting, Sudbury 365 Bottom Paint protects your boat below the waterline...for a full year and longer! Easy and quick to apply; no need to remove old paint; just brush on as it comes from the can. The only bottom paint that's guaranteed for a full year. Handsome dark maroon. Qt. **$9.95;** Gal. **$35.90.**

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## SUDBURY FIBRE-GLASS PRIMER

Any suitable paint will adhere to fibre-glass and aluminum after a coat of this special primer. Forms tight bond that prevents coat from cracking, chipping, peeling. Now these owners can also have all-season freedom from fouling and marine growth by using Sudbury 365 Bottom Paint. Qt. **$3;** Gal. **$11.75.**

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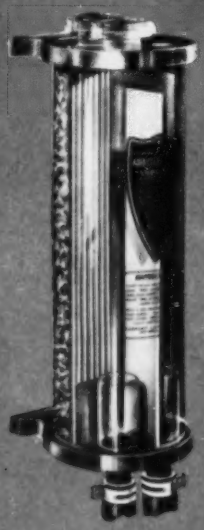
# TRANSPARENT SKY-VENT
## *Keeps Fresh Air on the Move*

Sudbury Sky-Vents give real meaning to the phrase, "There's No Ventilation Like SKY-VENTilation!" They keep fresh air on the move, admit light below deck...keep out rain and spray. They'll keep any boat clean, fresh smelling, and dry even when hatches are closed. Leading boat builders recommend installing on new boats as well as boats now in service. Non-corrosive, non-fouling, non-magnetic. Domes transparent or in a variety of colors. 9 in. **$34.95;** 12 in. **$59.95;** 18 in. **$89.95.**



# AQUA-CLEAR Feeders
## *Stop Rust and Corrosion*

Marine engines don't wear out—they rust out! But the Sudbury AQUA-CLEAR Feeder stops this! Keeps new engines from ever rusting—makes old engines last years longer. $50 spent now can save you hundreds of dollars before the season is over. Protects block, manifold, cylinder head, water pump, etc. Makes all water entering the cooling system completely non-corrosive. One-piece welded clear lucite construction makes water circulation always visible. No moving parts to wear out, break down. In fact, the cost of the Feeders and the cost of maintaining them has been "peanuts" compared with the savings effected by their use. Model A—20 to 74 hp. **$39.95;** Model B—75 to 145 hp. **$49.95;** Model C—150 to 250 hp. **$89.95.**

# TRANSPARENT Lightweight BOAT
## *There's Fun Watching Marine Life*

Always fascinating to use. Amazingly practical, also prized for skin diving, duck shooting, fishing, enjoying colorful underwater marine life. Weighs 44 lbs. Easily lifted topside, acts as waterproof skylight over hatch. It's as tough and resilient as the "blister" on a bomber. Easy to row or use with an outboard. Mahogany gunwales and seats. Only **$199.95,** plus crating and shipping costs.

# AUTOMATIC BILGE CLEANER
## *Let the Roll of the Boat Clean the Bilge!*

Here's a quick, easy way to keep your bilge clean, safe, and free from unpleasant odors without scrubbing and scraping. Gets all the grease and scum, too. A few tablespoons poured into the bilge will emulsify all gas and oil with the water—cleaning, deodorizing, and safe-guarding the bilge from fire or explosion. Let the roll of the boat do the work! Pt. **$1.29;** Qt. **$1.98.**

# VAPOR PROOF SWITCHES
## *Prevent Explosion on Your Boat*

Prevent explosion from dangerous open switches! Multiple-pole switch gives selective control of one, two, or more batteries in starting, or recharging while underway. Single-pole for radio, pump, light or other circuits. 300 amps. Safety Authority Approved. Multiple-pole, **$17.95;** Single-pole, **$7.95.**

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# NEW... for fighting fire at sea!

2½-lb. Pressurized Dry Chemical

5-lb. Pressurized Dry Chemical

## Kidde full-power dry chemical portables kill more fire faster!

Fully-approved by the U. S. Coast Guard, and granted top rating by Underwriters' Labs, these two new pressurized Kidde dry chemical portable fire extinguishers are the ideal replacement for carbon tetrachloride portable extinguishers. These 2½ and 5-pound Kidde models put out as much fire as eight and sixteen one-quart carbon tet units respectively, are designed for the fast, simple operation that's so important when you're afloat.

There are no valves to turn, no pins to pull. Just aim and press the lever. Protected pressure gauges show charging pressure at a glance. Easy to charge, easy to maintain, Kidde dry chemical units let you move fast against fire, are the easiest-to-operate portable extinguishers on the market today. For more information about these units, as well as completely automatic Kidde carbon dioxide yacht fire extinguishing systems, write today for Kidde's booklet, *"Your Uninvited Guest."*

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**Outboard or Inboard . . . There's an AC Marine Spark Plug especially designed for your engine.** It takes marine spark plugs to get the best from your boat! And you get the best in marine design and features when you get AC Hot Tip Marine Spark Plugs! You get AC's *positive rustproofing* that guards against corrosion. You get AC's *universal terminal* that accepts all types of lead wires. You get AC's *captive gasket* that is permanently attached to the Spark Plug so it can't be lost. You get AC's *plastic packaging* that keeps the Spark Plug factory-fresh at no extra cost.

So, at fitting-out time, when you're getting set for another season of family fun, get new AC *Marine* Spark Plugs for your motor. Ask your AC Dealer for the AC "Hot Tip" that's best for your boat!

AC

HOT TIP MARINE SPARK PLUGS

AC SPARK PLUG ⚛ THE ELECTRONICS DIVISION OF GENERAL MOTORS

* AC Marine Spark Plugs are factory-approved as original equipment for nearly every make of Marine Motor!

## READERS REPORT

(*continued from page 8*)

anticipation. Surely there are many other readers who would jump at the chance at obtaining such an informative book. Besides, my wife is complaining about all the magazines that I insist on keeping.

Walter E. Ellis
Ottawa, Ont.

*Elbert Robberson is now working on a book containing his seamanship articles that have appeared in* POPULAR BOATING *as well as previously unpublished material. Publication is scheduled for the near future. But don't throw away your back issues; there's a lot of good reading in them.—Ed.*

### WHICH YEAR?

On page 6 of your January issue there appears an ad "Calling All Boatmen." The date is listed as Monday, April 28. April 28, 1959 is a Tuesday. Please verify.

Julius Halprin
Caldwell, N. J.

*We suggest you read the editorial which accompanies the illustration, which, incidentally, is not an ad. You will note that it represents one of the posters used by the Tri-County Outboard Boating Club to attract boatmen to its safety demonstrations in 1958, a year in which April 28 did fall on Monday.—Ed.*

### LAUNCHING ROLLERS

In regard to Launching Rollers letter by Kenneth G. Meyer, Des Plaines, Ill., (Readers Report, January issue), this is my answer:

My boat house is about 1½ feet above water and up on dry land, as we also up here in northern Michigan have ice conditions to contend with, and the setup I have for my boat has proven very satisfactory with little expense and effort.

I also have a 14-foot runabout with a 35 hp Johnson motor, total weight approximately 630 lbs. I have a small winch bolted in the boat house with a 3/16" or ¼" 30-foot cable, and two air filled rollers, 42" long and 8" in diameter when inflated (larger winches and rollers are available). To bring the boat in, I hook on cable and put one air roller under the boat. Then I pull with the winch about 5 feet and put the other air roller under, then pull the boat up into the boat house. These rollers will go over rocks, stumps or dry ground and they will not harm any boat's keel.

To launch the boat, I just take off the cable and press on the front deck slightly. The boat just rolls into the water. I have used these rollers for the past three years and they are still in good condition. I purchased this equipment from General Merchandise Co. of Milwaukee, Wis.

Adolph H. Kratt
Hubbell, Mich.

### PLEASURE FOR GUESTS

Many thanks for your "Most Neglected Emergency" (Seamanship, by Elbert Robberson, January issue). I intend to follow the advice given this year not only for the increase in boating safety, but for the greatly increased pleasure it will bring to one's guests aboard, as they will become an interested part of boating. This should be so much more fun than just being a guest or passenger.

John Gifford
Muskegon, Mich.

### AUTHOR TO READER

Attention to Dan Healy,
address unknown:
Dear Dan,

I am glad you are enjoying POPULAR BOATING'S test series. It's nice to hear from you after so many years. But somehow you failed to include your address on the card you sent me. I'd like to go boating on your "local waterway" but where is it?

Hank Bowman
c/o Popular Boating
One Park Ave.
New York 16, N. Y.

most exciting outboard for '59
40 h.p. Golden Shark
40 h.p. Golden Shark w/electric starter and 20 amp. Super-Alternator generator $675
This is the year of the Golden Shark . . . the year to travel first class! Breath-taking in beauty and sleek design — flashing its Arctic White and Pirate Gold colors at the boats it leaves behind. You take command with the exciting Synchro-Drive Remote Control and it's an outboard dream come true. See all the other West Bend cruisin' and fishin' motors: 2 h.p. to 40 h.p., $125 to $525.
20 amp. Super-Alternator generator • Direct battery automotive ignition • Automatic speed synchronization • "Sports car" control panel • Fuel economizer • Stainless steel underwater parts • Full one year warranty.
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like an automatic transmission
So smoothly synchronized it operates like the automatic transmission of your automobile. One lever controls throttle and gear shift. Turn of key starts, locks, electrically chokes motor. Twin installation control available.
all prices f.o.b. Factory at Hartford, Wisconsin
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WEST BEND ALUMINUM CO., Dept. 132C, Hartford, Wis.

# Paint is for the Indians!

## MODERN MARINERS SOLVE THESE PROBLEMS WITH

# ALROY EPOXY COATINGS

## "THE PERFECT COAT FOR EVERY BOAT"

***"How can I waterproof my boat without adding useless weight?"***

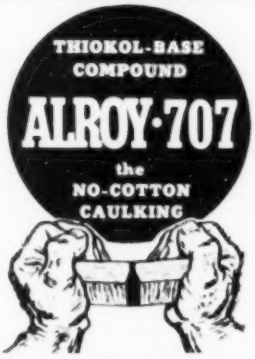
Simply use ALROY-703 the epoxy marine coating for heavy-duty service. Eliminates the necessity of using fiber glass, which adds a great deal of weight. ALROY-703 is absolutely waterproof and can be brushed on 1/32" thick to fill cracks and checks. It is both tough and flexible.

**ALROY-711 EPOXY**

***"Tell me how to beautify brightwork without backbreak?"***

The answer to your problem is ALROY-711. It brushes on easily, it will outlast varnish 6 to 1, sets by catalytic action (not evaporation) to form a high-gloss waterproof coating that bonds tenaciously. Moreover, it is abrasion resistant and resilient. Topsides finished with ALROY-711 wipe clean easily since oil and grease cannot penetrate the tough glassy protective surface.

## LEAKY SEAMS SPOIL YOUR DREAMS?




Creates a virtually unbreakable watertight bond. Remains resilient, flexes with boat's motion and temperature. Never shrinks or loosens, needs no priming, avoids annual re-caulking! Can be sanded.

***"My trailered lapstrake boat leaks. How can I overcome this?"***

It's great to take your boat traveling, but even with modern trailers and good roads a lapstrake hull takes quite a beating. Moreover, many a hauling owner takes his boat out of the water so often it never really gets a chance to swell. Hauling the boat when dry subjects ito vibration that loosens the rivets. ALROY-703 brushed between the strakes is a neat way to prevent this. ALROY-703 is waterproof, flexible and tenaciously adhesive—properties that make it suitable for stopping lapstrake leaks, however caused.

**ALROY-703 EPOXY**

***"Is there any practical way to prevent plywood from checking and separating?"***

Use a flexible, waterproof coating that does not evaporate or dry out. ALROY-703 sets or "cures" by catalytic action (not evaporation), forming a continuous "skin" that's impervious to oils, grease, gasoline, salt water, etc. Applied as per directions ALROY-703 keeps out the moisture that causes plywood de-lamination.

**INSIST ON ALROY EPOXY ADVANTAGES—**

- A 2-PART, 1-TO-1 MIX (No tricky measuring)
- POT LIFE 5 HOURS—and more!
- WHITES DO NOT YELLOW
- COLORS DO NOT HAZE OR CHALK

***ALROY PRODUCTS** are being used for diversified industrial applications. Inquiries invited.*

***"My boat is frequently pulled up on sandy and gravelly beaches. I'd like to make the bottom scrapeproof without going to the expense of fiberglassing. What do you suggest?"***

Although not absolutely essential, best results are obtained by first removing the old paint. (It's probably in bad shape anyhow). Apply one or two coats of ALROY-703. Finish off with high-gloss ALROY-711. Or use an anti-fouling paint over the coat, if that's a problem.

**ALROY-711 EPOXY**

***"How can I increase speed?"***

The obvious answer of course is a bigger motor or more sail. But the easier (and far less costly way) is to finish the bottom with ALROY-711, the epoxy coating that forms a glass hard, virtually frictionless surface that prevents absorption of water. ALROY-711 forms a protective coating that will outlast ordinary finishes several times over.

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**Makes 1001 "Impossible" Repairs**

(Unaffected by salt water. Impervious to oils, grease, gasoline, etc., REMAINS RESILIENT).

- For permanent repairs on wood, aluminum, fiber glass hulls. Extra strength and resiliency to withstand marine stresses.
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SEAMANSHIP

# STRANDING

By Elbert Robberson

THERE'S NO USE SAYING boats shouldn't go aground, or that good skippers don't do it. Columbus stranded the *Santa Maria* on San Domingo Island. A Naval commander unwittingly ordered all the destroyers he had to his name to steam up onto the California coast. Battleships have majestically glided into the mud. The *S. S. President Coolidge* somehow ran squarely into a China beach. And it has happened to me, in places ranging from Yakatat to Valpariso—it just seems in the cards, sometimes. Try, of course, to keep off the beach with all the knowledge and skill at your command, but, just as important, know in advance what to do when it happens.

There are dozens of procedures to follow which have worked in the past, any one of which might be your own best first step—like throwing the engine full-speed astern. On hard ground, this may turn the trick by itself. But on a rock that has stove in a plank, you may slip off and keep going down as the boat fills. And in mud or sand, running the propeller astern for more than just a long enough time to determine if you are lucky or not, may roil enough muck into your engine cooling system to ruin the engine. Also, you may curl the propeller.

So, first of all, take the engine out of gear. If you know you haven't cracked on a rock, try your luck with a brief full-power pull astern. If nothing good happens, turn it off. Then put the old skull into gear. The thing to do now is to determine the extent of any damage, what you are hung up on, the depth of the water—in general, just how serious your situation is. And there is no point at this stage in breaking your back over any lightning-fast heroics: usually, things will remain just as they are for some time without getting any worse—long enough, at least, for a little intelligent planning.

At some stage of the game, you should check the bilge to make sure the hull was not damaged. If the sound of grounding included thumps or cracks, do this first. What to do in case you find damage was covered in the Seamanship column on page 68 of POPULAR BOATING for December, 1957. Even if damage is not obvious, leave a convenient floorboard up so a frequent check can be made on the bilge water level.

If there is much water in the bilge, have someone pump it out—one of the most helpful operations for getting off is lightening ship, and water weighs over eight-pounds per gallon.

Sometimes you may know darn good and well what kind of dirt you've gone aground on, and whether the bottom is shelving or comes up abruptly. In this case, you can just go ahead trying to get off. But in unfamiliar waters, sound along both sides, both to get the depth and to determine the nature of the bottom. You should know the stage of the tide to begin with, but if you don't, drive a stick, or boathook (or whatever) alongside, so you can observe whether the water is going up or coming down. If it is rising, chances are that you will float off sooner or later. If it is falling rapidly, rest your bones and prepare for the next high water—you aren't going anyplace now!

On a hard bottom, it is sometimes possible to pole yourself off, with as many people as available pushing against the bottom with boathooks and oars. Pushing in this way lightens the craft and gives good thrust aft. If the bottom

(*continued on page* 18)


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... sail to victory with Ulmer Sails!

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*Jr. National Champion*
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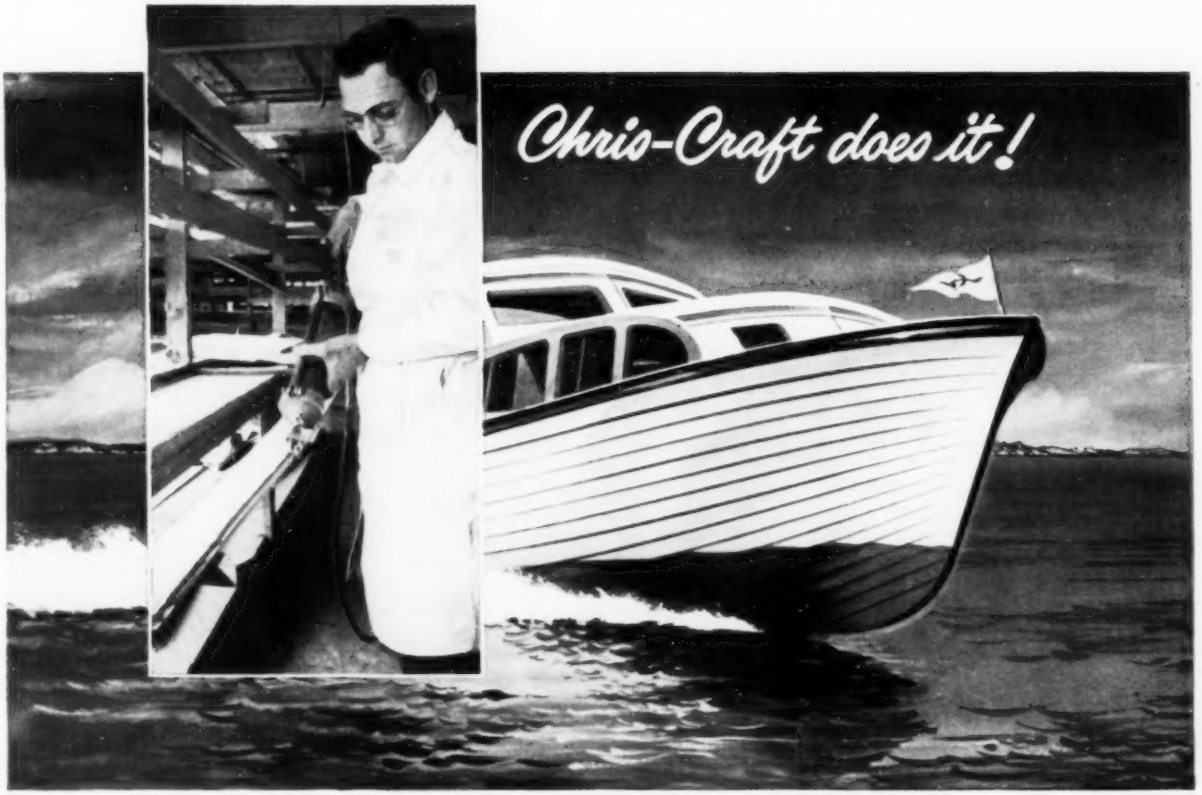
# LAPSTRAKE TYPE HULLS SEALED WATER-TIGHT...*for years!*




## ...*with new elastomeric sealants based on* THIOKOL *liquid polymers*

There's no need to worry about wood shrinking and swelling with Chris-Craft's effective use of elastomeric sealants.

At the Chris-Craft plant near Salisbury, Maryland, every lapstrake type hull is sealed with THIOKOL polysulfide-base sealant. A bead of this sealant is placed around the perimeter of each plank as it is assembled, then "buttered" into the transom and stem planking. This assures a permanent, water-tight seal that is able to withstand the year-in and year-out effects of salt water, weather, fuel and oil.

The flexible nature of this sealant permits the planking to "work" with the movement of the hull, maintaining a seal that yields, yet holds tightly even in the roughest seas.

Modern elastomeric sealants based on THIOKOL liquid polymers have enabled Chris-Craft to solve the problem of producing lapstrake construction that is assuredly seaworthy. We invite you to investigate these superior sealing compounds. Write to THIOKOL at address below.

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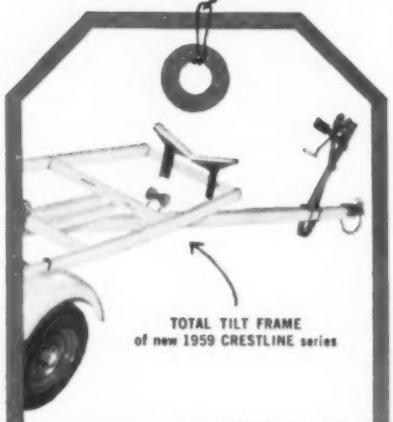
MASTERCRAFT BOAT TRAILERS



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See the newest of the many fine Mastercraft series—CRESTLINE boat trailers with TOTAL TILT FRAME . . . EZY-VEE loading guide . . . new COLOR STYLING . . . and many many fabulous design innovations . . . ALL priced easy on the budget.

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## SEAMANSHIP

(*continued from page* 16)

permits, a couple (or more) of huskies can also go over the side and push, lifting and prying under the bow with something such as doubled-up oars or floorboards. But they should wear shoes and climb down a swimming ladder or rope, and not blithely jump overboard. Nobody knows what they might light on — from a cache of broken bottles to a fifteen-foot hole.

Do not run the engine with people overboard, and leave the rope or ladder in place so the pushers can get back aboard if the boat slides off. If everyone aboard is healthy and able, getting all of them wet (except one lightweight to take charge of the boat) may be something of a nuisance, but the extra lightening and push power could be worth more than worrying and grunting away at other methods.

If you can't push her off in these ways, your next best bet is pulling. If you have a dinghy, this should have been put in the water to begin with, of course. Pile your anchors and lines into it—leave the end of the main warp secured aboard. Then take yourself a good long row, paying out the main anchor warp as you go. If there is no current, go at right angles to the beach. With a cross current, pull at an angle upstream: the current will aid your later efforts in getting off.

When the main anchor rode is all out, tie the rode of your next anchor to the main-anchor eye or shackle, and drop the main overboard. Then row on out to the limit of line on the next anchor, and dunk it. Two anchors are fine, three would be better—all out just as far as they can be stretched. Then get back to your boat.

If the water is not any lower now than when you stranded, you can start heaving on the anchors. Use arm power if that is all you have, or the anchor winch. If there is no winch, and not enough manpower aboard for a good strong tug, a tackle or temporary windlass powerful enough to break the rope can be jury-rigged. For details on jury windlasses and tackle, see Seamanship columns on page 82 in 1958's October and November issues of POPULAR BOATING.

Hook onto something strong—a half-inch line can take a ton's worth of pull, while your boat's quarter cleats probably cannot. For a really hefty pull, secure to a heavy line run around the cabin, or a heavy mast, or even around the bow of the boat.

Then, heave up until you can thrum the cable, and the water drips out. If you're still in place, try a burst with the engine full-speed astern, being ready instantly to grab in the line before it gets in the propeller. This combination of force should move a house.

Make sure the rudder is amidships; if it drags in mud while hard-over, it may slew the boat around, and it might even bend or break.

Without a dinghy to take out the anchors, you can still do just about as well. Say you have four buoyant cushions aboard, each of which will support at least 12-pounds deadweight. Each one of them will support 12-pounds of anchor—tie together as many of them as necessary to float your anchors, tie your anchors to them with a light line, and lower the bundle into the water. All you have to do now is swim them out as far as possible, then cut the lashing and let the anchors go. Carry a knife. Swim back, and get to heaving on the line.

A puny substitute for carrying out the anchors is to heave them as far off the stern as possible. If you aren't stuck too hard and fast, these may hold well enough to start you moving.

There are a number of other gimmicks which may be helpful, depending upon the boat and the circumstances. If your water tanks are forward, pumping them dry may remove sufficient weight to get you unstuck. Move everything that can't be thrown overboard as far aft as possible, including passengers—this may see-saw the bow up.

A passing boat may be able to give you a tow—throw or carry the line out to her so two boats don't end up on the beach. A pull straight aft should be tried, then off one quarter and then the other, which maneuver may work your boat free. The tugging boat should be ready to pull out in a hurry in case you come off in a rush, and, of course, watch out that lines don't snag propellers.

With a number of persons aboard, having them scamper to one side of the boat and then to the other may help. Boats with deep keels may come free quite readily if heeled over sharply—wing the boom over the side with a preventer forward, and put some weight on the end of the boom, such as your heaviest passengers. A dinghy can be secured to the end of the boom by a bridle, and hove down to by taking up on the topping lift, or a halliard secured to the end of the boom. If more weight is needed, fill the dink with water.

Sometimes the wash of a passing boat will momentarily lift a grounded vessel, so if one happens to pass, heave on your stern lines.

If all of this fails, you need help. Before leaving the boat, be sure to anchor astern; otherwise, by chance, she might come free and float away—and unless you happen to be in an anchorage, turn on your anchor light.

Remember, the best of them have gone aground. The important thing, when you pull such a boo-boo, is to know how to get out of it.

—ELBERT ROBBERSON

# Beautiful...
# but oh, so tough!

# M-G

## THE HULL IS THE REASON

Both 15 and 13-foot "MFG" Boats feature the famous, tough MOLDED FIBER GLASS hull . . . with all-over lapstrake design . . . molded under heat and high pressure in matched metal dies . . .

**STRONGER** pound for pound than any other hull because of greater glass density (achieved by the high-pressure molding) . . . and because of tough fiberglass ribs used for additional reinforcement . . .

**EXTRA STABLE** because of high freeboard, soft chines and more beam than any other boats of comparable size . . .

**FAST, EASY TO HANDLE** because of the deep, wide, soft-chined lapstrake hull design . . .

**EASY TO CARE FOR** — no painting for protection, no caulking, no rotting, no corroding . . .

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**ECONOMICAL**—because "MFG" is mass produced.

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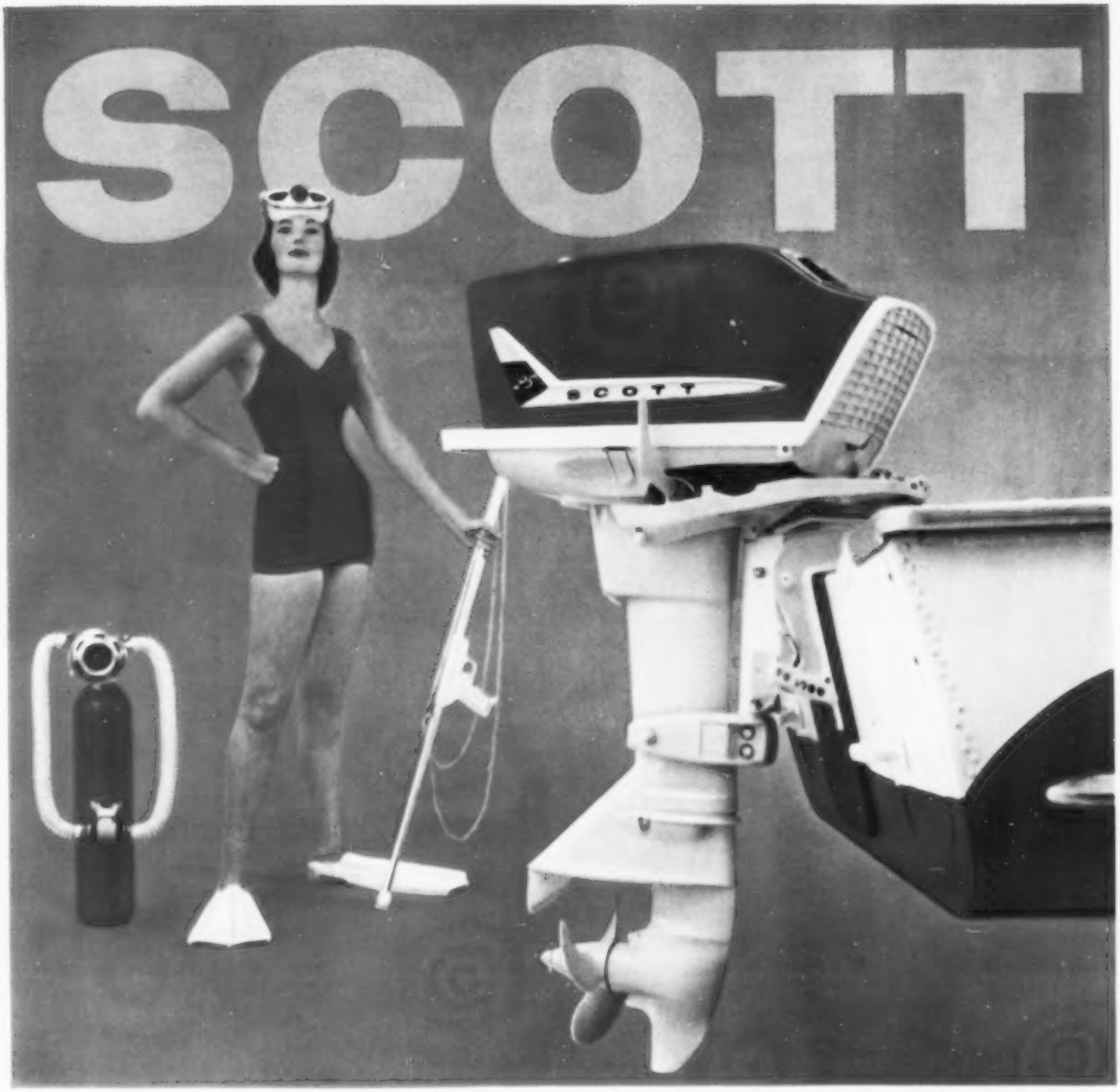


# Leaves all other outboards years behind!

*Lean, light and loaded with "go"... the lively new 25 hp Scott!*

What's your pleasure—skin-diving, skiing, or just skimming the waves? The lean, queen-sized new "25" was born for fast action, brimming with eager power.

Over 29.9 cubic inch piston displacement delivers power that puts her into the "big motor" field. New deep-breathing double "V" valves let you gun her smoothly from easy idle to wide open throttle.

Rubber cushion mounts and idle relief exhaust add hush to her hustle. Steering's easier, thanks to an offset lower unit that counteracts propeller torque. And Bail-a-matic power bailing ends forever an old boating chore.

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*OBC certified at 4800 rpm.

## 10 NEW SCOTTS 3.6 TO 60 HP

Ask your dealer about a Scott-powered outboard combination that suits your brand of outboard fun. Or send for colorful free 1959 Scott catalog. Write Scott Folder, Dept. PB-49, Marine Products Division, McCulloch Corporation, Minneapolis 13, Minn.

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be enough to restore

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Boat owners expect fas
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terials needed for each ty
simple step-by-step "painting
help to boat owners as well as marine dealers and fini
ers. Z-Spar Painting Systems help Z-Spar users save t
that they can now use for non-maintenance activiti

* * * * * * * * *

While Z-Spar is already outselling all competitive marine enamels combined in some areas, there is a splendid opportunity for marine distributors and dealers in other areas. If Z-Spar is not readily available to you, the marine outlets in your area have an exceptional opportunity. Advise your friends in this field to contact the nearest Andrew Brown Company office for information.

* * * * * * * * *

Everyone likes a more beautiful looking boat, but most of us agree that the protection of marine surfaces is more important. If a skipper wants BOTH "new boat beauty" and maximum protection all season long, the obvious answer is Brolite Z-Spar Supreme Marine finishes which is tops on both counts.

Most of t
hobby ever.
quickly move into a world far removed from the stresses and strains of our work. Just cruising about in a boat that sparkles with gleaming Z-Spar enamel topsides can be enough to restore our work-shattered ego and make Monday far easier to face.

Be sure to try these

**"MOST MODERN MARINE FINISHES"**

"I call them 'most modern' because Z-Spar Supreme Marine Enamels protect my boat better and keep my boat looking new far longer than any other marine finish I've ever tried."

New, easy Z-Spar "Painting Systems" give top, professionally-proven protection with minimum time and cost. Ask your marine dealer or mail coupon.

Brolite
**Z★SPAR**
SUPREME MARINE FINISHES

FREE FOLDER

ANDREW BROWN COMPANY
P.O. Box 22066, Los Angeles 22, Calif.
**Rush new Z-Spar PAINTING SYSTEMS FOLDER to:**
Name_____
Address_____
_____
_____
Type Boat_____ X

# CAPTAIN FRED'S LOG

Your marine radiotelephone can be a wonderful safety device, but a great deal depends on the way you use it. To make sure your 'phone fulfills its safety function properly, the FCC has established a set of rules covering radiotelephone installation and operation.

**For example, all 'phone-equipped boats are required to monitor the international calling and distress frequency of 2182 kc. when underway. This means that, in case of emergency, your distress call is certain to be heard by all such boats in the area, putting help only as far away as the nearest of these boats. By the same token, you're sure to hear another boatsman's emergency signal and so be able to come to his aid at once. Incidentally, the FCC is enforcing this rule.**

Fred E. Lawton

Because staying tuned to 2182 kc. can prove inconvenient, many boat owners have found it desirable to install a channel monitor for this purpose. As its name suggests, this simple, compact, low-cost unit receives marine channels. With it you can monitor 2182 kc. without heavy drain on your battery, or you can listen to 2182 kc. at the same time that your telephone is tuned to another channel. A transistorized 5-channel unit, Model CM-5, is available from Raytheon. Many boatsmen like a channel monitor even if they do not have a radiotelephone—just to listen in on the "party line".

**Another FCC regulation requires that you be able to answer your radiotelephone within 5 seconds of being called. If you are alone on the flying bridge of a boat and the 'phone is in the cabin, this is no mean feat. That's why more and more boatsmen are installing remote control units for their 'phone in their deck house, flying bridge, or other convenient location. Many of the newer remote control units change channels, besides controlling volume and on-off. Raytheon's remote control Model RCC-1 changes up to 10 channels, works up to 25 feet away from the radiotelephone, and can be used with a variety of recent Raytheon 'phones.**

By the way, radiotelephones now come in a variety of sizes and models, ranging from compact, easily removed units to powerful, permanently installed offshore models. No boat need remain without one—and it can save your life.

Fred E. Lawton

*Fred E. Lawton, Professional Sailing Master of America's Cup winner COLUMBIA, is a veteran of 30 years at sea. He is a popular speaker on marine safety to boating groups throughout the country.*


SAFETY AND EDUCATIONAL AIDS

"SAFETY MAKES A HAPPY SHIP"

***"Safety Makes a Happy Ship"***

RAYTHEON MFG. CO.
MARINE PRODUCTS DEPT.
WALTHAM 54, MASS.

# HERE'S HOW

## Answers to Your Boating Queries

By John Kingdon

### BOOKS ON SAILING

**"I'M A RANK amateur sailor, having sailed only some six months by the rule of 'by guess and by gosh.' Please refer me to a good, comprehensive book on the subject."**

**Arnold Satfield**
**Represa, Calif.**

There are at least two good books on the subject:

*How to Sail* by Carl D. Lane; W. W. Norton & Co., Inc., New York; 267 pages; $3.95.

*Learning to Sail* by H. A. Calahan; The MacMillan Co., New York; 345 pages; $4.95.

### HOOKED HULL

**"A SHORT time ago we bought a used 14-foot outboard runabout, a used trailer and a new 18-hp Johnson motor.**

**"This being our first boat, we know very little about such things; so we didn't notice until the rig was delivered that the former owner had the trailer's after cradles set too high and had thus put two dents (hooks, I believe they are called) in the hull about 25 per cent of the boat's length forward of the transom, one on each side of the keel. We immediately adjusted the cradles to give proper support.**

**"Can you tell us if these hooks will have any effect on the boat's performance? If so, is there any chance that the hooks will straighten out by themselves now that the cradles have been properly adjusted? If not, is there any way to straighten them?"**

**P. L. Golston**
**Louisville, Ky.**

These hooks will certainly adversely affect the boat's performance. How much speed will be lost will depend on how bad the hooks are. If they are small, the loss may be imperceptible. If they are large, not only will the boat be slowed down quite a bit but also its riding and handling characteristics may suffer badly.

As long as the boat is on the trailer with part of its weight carried by the guilty cradles, the hooks will have no chance to straighten themselves out. If the boat is removed from the trailer, the hooks may have a tendency to straighten. This tendency can be augmented by soaking the affected areas in hot water and putting heavy weights in the hull atop the dents.

If this doesn't do the job, you can fill in the hooks with fiberglass mat and resin. Prepare the surface for this operation by sanding off all paint in the hooks and for several inches around the hooks, exposing fresh, clean wood. An open-face paint-stripping abrasive is the best sandpaper to use here.

Next, cut pieces of fiberglass mat to the general pattern of the dents. Wearing rubber gloves, soak the mats in resin, lay them in the dents and fingermold them in place. If more than one thickness is needed, you can put on one layer after another without waiting for each layer to harden.

After building up the pockets to a little above the surrounding areas, allow the mats to dry thoroughly and then sand them down to blend or fair smoothly into the rest of the hull. The drying process can be hastened by setting up a heat lamp about 12 inches away from the surface.

Then soak two pieces of fiberglass cloth in the resin and put one on the hull over each filler, allowing the edges of the cloth to extend beyond the fillers. Again allow to dry and then sand down the edges of the cloth to feather into the hull. Finish by repainting the bottom of the boat in the conventional manner.

### BAFFLED TANKS

**"I HAVE a 40-foot cabin cruiser in which I am planning to install two gasoline tanks. Each will be 14 inches in diameter and 60 inches long. Do they need baffle plates? If so, how many? Also, can you explain the function of the baffles, and what would be the result if a tank requiring baffles were installed without them."**

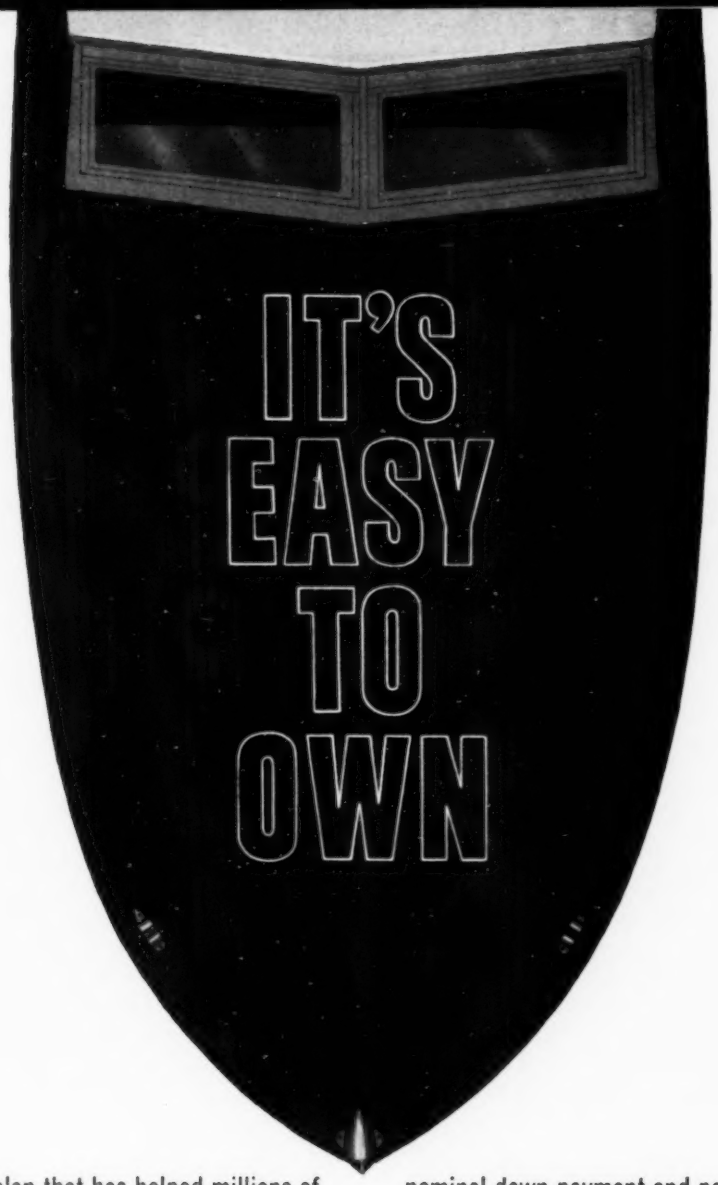
**James M. Strickland**
**Arlington, Va.**

According to the National Fire Protection Association's *Fire Protection Standards for Motor Craft*, "tanks exceeding 18 inches in any horizontal dimension shall be fitted with vertical baffle plates at intervals not exceeding 18 inches." You thus need three baffles in each tank on about 15-inch centers.

These should be of the same material and thickness as the tank walls. To allow the fuel passage through the baffles, they should have holes drilled through them or segments cut away from their perimeters.

If the latter method is employed (again quoting from the *Standards*), "The aggregate attachment of baffle flanges shall extend not less than 75 per cent of the dimension of the tank wall at the line of contact." In other words, with a 14-inch tank, which has a circumference of roughly 44 inches,

(*continued on page* 28)




Now, the national plan that has helped millions of Americans buy automobiles, mobile homes, television and radio sets, home appliances, etc., can put you in your own boat sooner than you thought. In fact, every minute of every day another family finances a purchase on the Commercial Credit Plan.

With the Commercial Credit Plan, you make only a nominal down payment and pay for your boat and all insurance in convenient monthly instalments. Ask your boat dealer for full details.

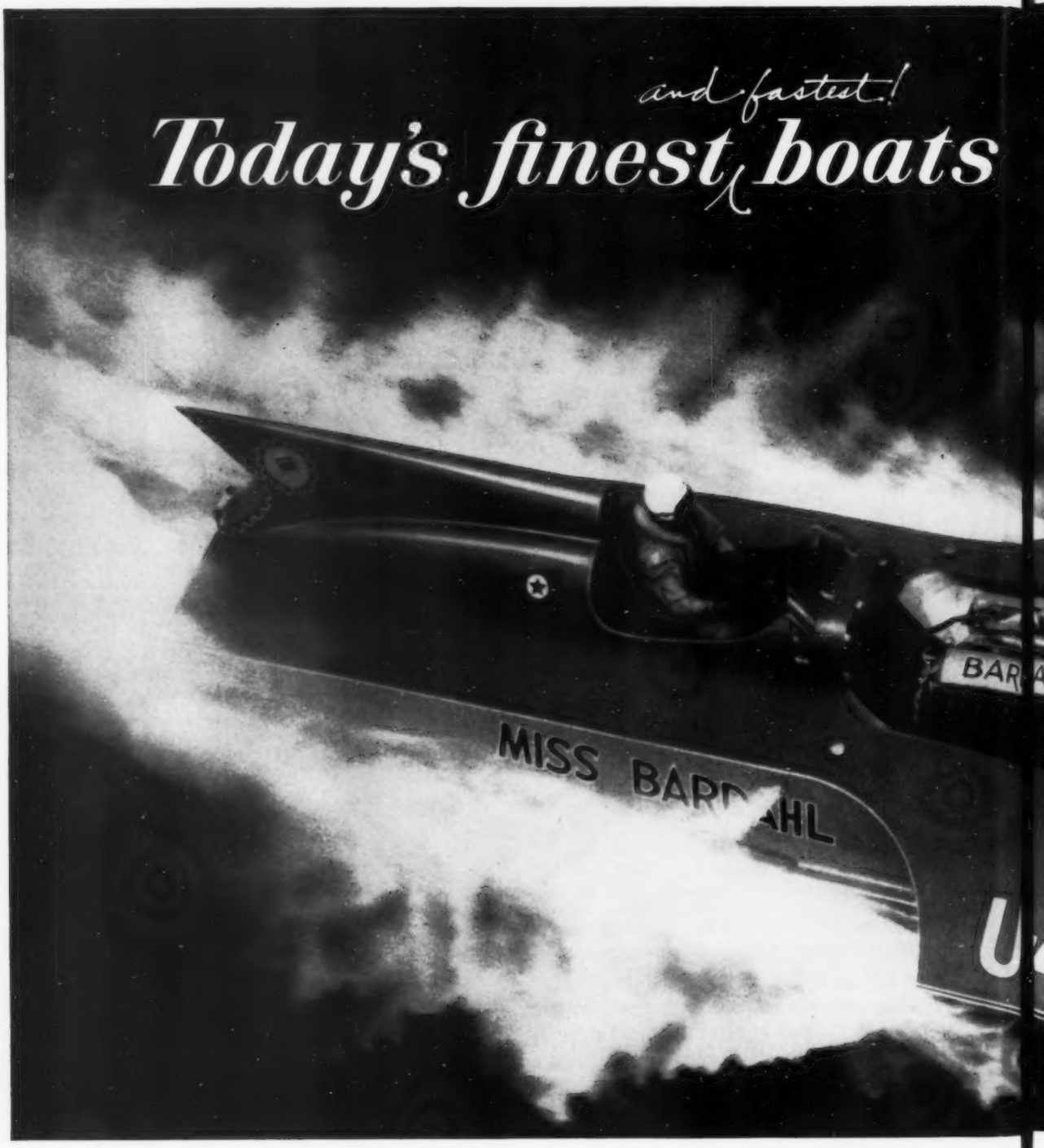
**DEALERS:** First and only national finance plan with offices in every state and Canada offers you flexible retail and wholesale financing plans. Call your local Commercial Credit office today.

*enjoy your boat now ... take time to pay*

COMMERCIAL CREDIT PLAN

ANOTHER SERVICE OFFERED BY AN AFFILIATE OF COMMERCIAL CREDIT

# Today's finest, and fastest! boats




Designed and built by Ted Jones, Miss Bardahl is driven by Miro Slovak. Owner: Ole Bardahl,

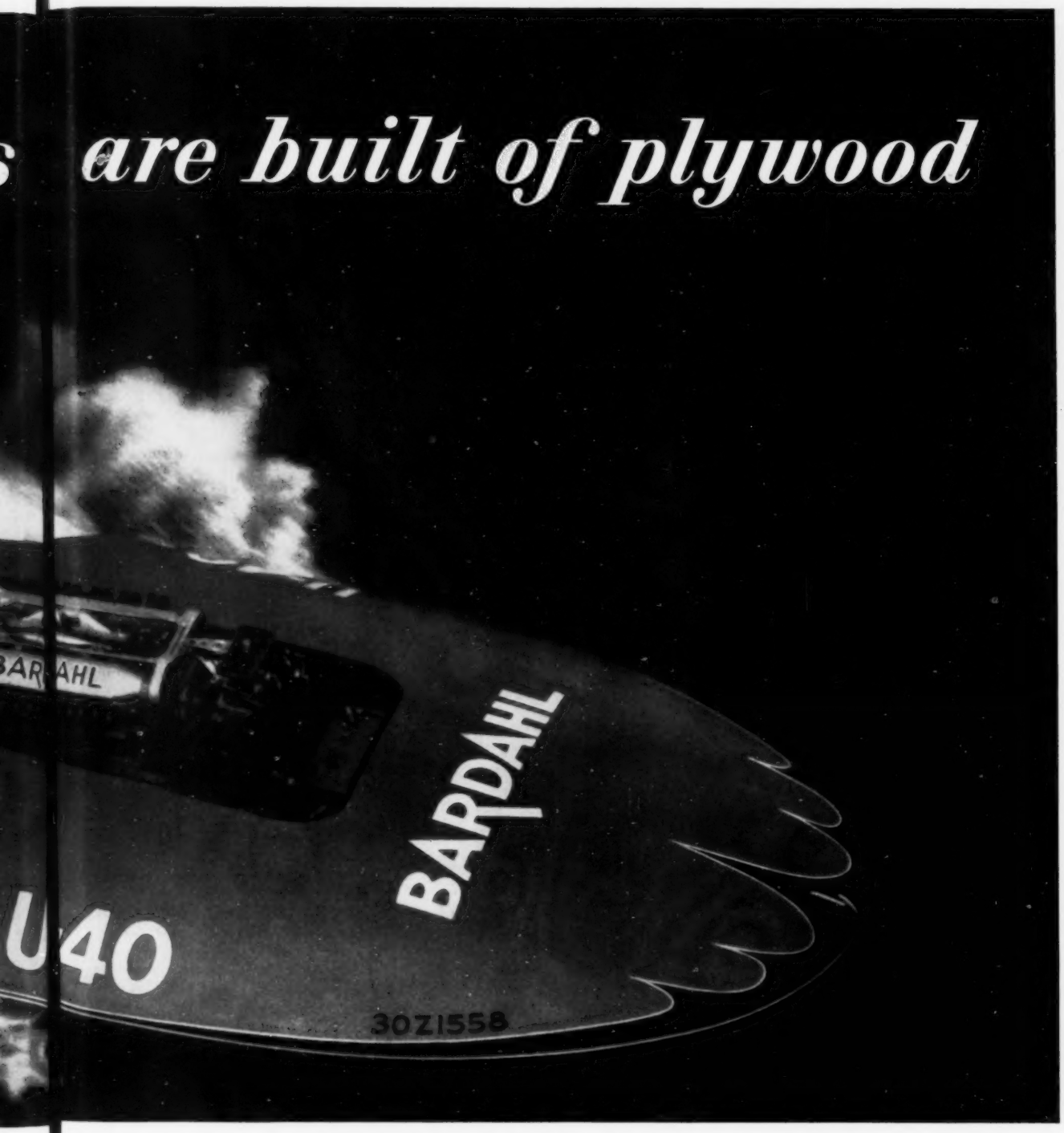
***1958 Unlimited Hydroplane Champion Miss Bardahl is a well-stacked plywood lady. She thrives on fast and rough going.***

UNLIMITED CLASS HYDROPLANE RACING is the ultimate test of boat design and performance. The big craft are subjected to an incredible beating as they slam into turns at top speed, wheel and fling 200-foot long rooster tails as they rocket through the straightaways at 170 m.p.h. plus.

It takes really rugged construction to stand up under this kind of punishment. That's why Miss Bardahl, 1958 Unlimited Champion, like almost all racing hydros, is built of Exterior plywood. Inside and out—hull, decking and bulkheads—the Bardahl relies on plywood to provide strength and stamina without the penalty of extra weight.

When you start thinking about *your* new boat, remember

# ...are built of plywood




Bardahl International Oil Corp., Seattle, producers of high-performance oil and gas additives.

the same solid plywood construction that makes Miss Bardahl a champion in her class will give you winning performance and value in yours.

See your boat dealer soon. He'll be glad to show you the latest plywood makes and models. Take a ride and see for yourself what a difference fine plywood construction can make. You get *time-proven* performance: speed, comfort and safety—and none of the brittleness, drumming corrosion or repair problems you get with plastic or metal. And not only do you get more in a fir plywood boat, you actually pay less. Model for model, feature for feature, you can save up to 25 per cent with a boat built of Exterior fir plywood.

**EXT-DFPA® MEANS QUALITY EXTERIOR PLYWOOD MADE WITH WATERPROOF MARINE GLUE**

Whether you buy or build, be sure all plywood is genuine EXT-DFPA waterproof Exterior plywood. (Comes in several grades, including solid-core "Marine" grade for planking.) It's used by all reputable boat manufacturers.

DOUGLAS FIR PLYWOOD ASSOCIATION, TACOMA 2, WASHINGTON

## HERE'S HOW

(*continued from page* 24)

33 inches (75 per cent) of the perimeter of each baffle must be attached to the tank wall.

Baffles serve two purposes: they add structural strength to the tanks and they restrain the fuel in partially empty tanks from swashing back and forth at will. It is necessary to restrain the fuel in this manner (1) to prevent annoying swishing and gurgling noises, (2) to keep the fuel from banging against the tank ends and possibly weakening them or causing the tanks to break away from their foundations and (3) to insure the boat's stability by slowing down the movement of the fuel, which has considerable weight and therefore has a sizable potential influence on stability.

### STEEL HULL ELECTROLYSIS

"I HAVE just purchased a 1947 Steelcraft cruiser. It is plated with ⅛-inch steel. The bottom is badly corroded and shows some evidence of electrolysis. I plan to sandblast and refinish this area. How should I go about this?"

Allen Rose
Daly City, Calif.

If the surface is so pitted that it needs building up, fill the pits with an epoxy-base plastic solder. Choose one that contains granules of steel rather than aluminum.

Then apply two coats of a base paint such as Galvex, which is made especially for steel hulls. It is coal black and will dry to a hard, mirror-like finish. Over this, apply one coat of an anticorrosive paint and finish with two coats of antifouling paint. The final coat of antifouling should be applied within eight hours of launching.

Before launching, replace the zinc plates on the strut and skeg. They will prevent further electrolysis. Make sure they are clean and under no circumstances paint over them.

### ENGINE FOR ECONOMY

"I AM planning to purchase a 19-foot Kingfisher from U. S. Molded Shapes, Inc., Grand Rapids, Mich., and would appreciate some help in selecting a suitable power plant.

"The Kingfisher measures 19'0"x16'8" x7'x6'9" and I estimate her total displacement will be 2,500 pounds when she is completely fitted out as a day cruiser.

"For reasons of economy, I am tentatively planning to use a marine conversion of either a Willys (75 hp @ 4,000 rpm) or a Ford V-8 (100 hp @ 3,200 rpm). What I am after is a cruising speed of approximatey 20 knots. Fuel economy is a necessity because of the scarcity of refueling facilities here in Alaska.

"Would you care to comment on my engine choices?"

A. J. Karlsson
Spenard, Alaska

You will find that *at cruising speed* the horsepower delivered to the propeller by the average marine-converted automobile engine will be about 60 per cent of the maximum brake horsepower listed by the automobile manufacturer. Thus the Willys will produce about 45 hp at the prop while the Ford will give about 60 hp.

The cruising speed of your boat will be about 18 knots with the Willys and about 20 knots with the Ford. Respective fuel consumptions at these speeds will be roughly 5.6 and 7.5 gallons per hour.

Since you want a cruising speed of 20 knots, the Ford is obviously better for your purposes than the Willys.

### JET PROPULSION

"I AM interested in boat propulsion through the medium of a directed water jet. I have read articles on this subject, but none has gone into any detail. Could you recommend a source from which I could get further information?"

John Kuzma
North Haven, Conn.

Hanley Hydrojet, Inc., Prospect, Ohio, is a leading firm in this business. I suggest that you write to this organization for catalogs and bulletins.

HERE IS
*Winner* FOR '59

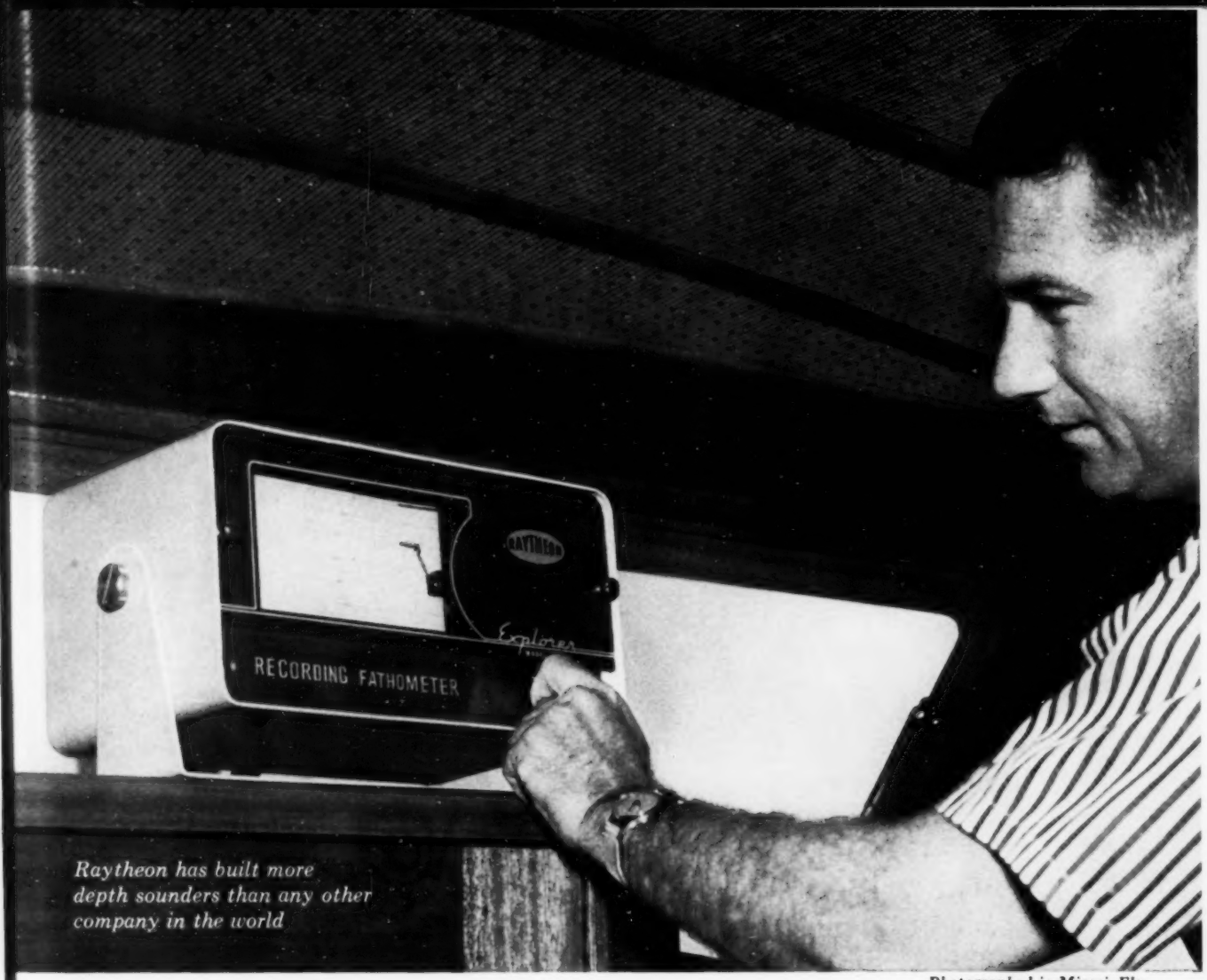
*Illustrated above is the 17-foot VOYAGER*

Behind many cars today, there's added pleasure . . . a Winner fiberglass boat! These smooth, density-molded, one-piece hulls bring a bonus of family fun to thousands of "land-locked" people. So easy to handle, anyone can drive a Winner outboard. The custom-styled, luxury look makes your Winner the envy of the crowd! Brilliant, new colors, many extra features, complete lack of maintainance. More and more families are discovering that the finest boat afloat is a Winner . . . it satisfies *everyone!*

Write for our '59 catalog and the name of your local Winner dealer, today . . . be a happy Winner owner tomorrow.

*Winner* MANUFACTURING COMPANY, INC.
108 Railroad Avenue, West Trenton, New Jersey

From 12'-19' there is a Winner outboard with unsinkable Styrofoam flotation that will be exactly what your family demands in a boat.




*Raytheon has built more depth sounders than any other company in the world*

*Photographed in Miami, Fla.*

# Greatest navigational aid since the compass!

## NEW, LOW-COST RECORDING FATHOMETER® — ONLY $255

You get a wonderful feeling of confidence and security when you navigate with real accuracy, and with the new "Explorer," you know your position *exactly*. Because it is a *recorder*, "Explorer" draws a continuous bottom contour which you can compare with your chart to find your position. It keeps a permanent record that you can refer to later, when you want to return to a particular spot.

It's great for fishing—accurately locates fishing grounds and actually shows fish. "Explorer" is ideal for navigating in unfamiliar waters, at night, or in fog. It locates anchorages and tells you whether you are over a hard or soft bottom.

You can read the "Explorer" in direct sunlight. The unit is easy to operate, costs very little to install. Like all Fathometers, it is dependable, built for long life and backed by 50 years' depth sounder experience.

Look under Marine Equipment and Supplies in The Yellow Pages

To get more boating pleasure than you've ever had before, ask your Raytheon dealer to show you the new "Explorer."

**7 EXCLUSIVE ADVANTAGES OF THE RAYTHEON "EXPLORER"**

1. Lowest cost recorder on the market
2. Read in direct sunlight
3. Keeps a permanent record of soundings
4. Locates fish and fishing grounds
5. Simple, low-cost installation
6. Easy to operate—one-knob control
7. Compact—6½ x 12½ x 7¼"; Uses only 24 watts

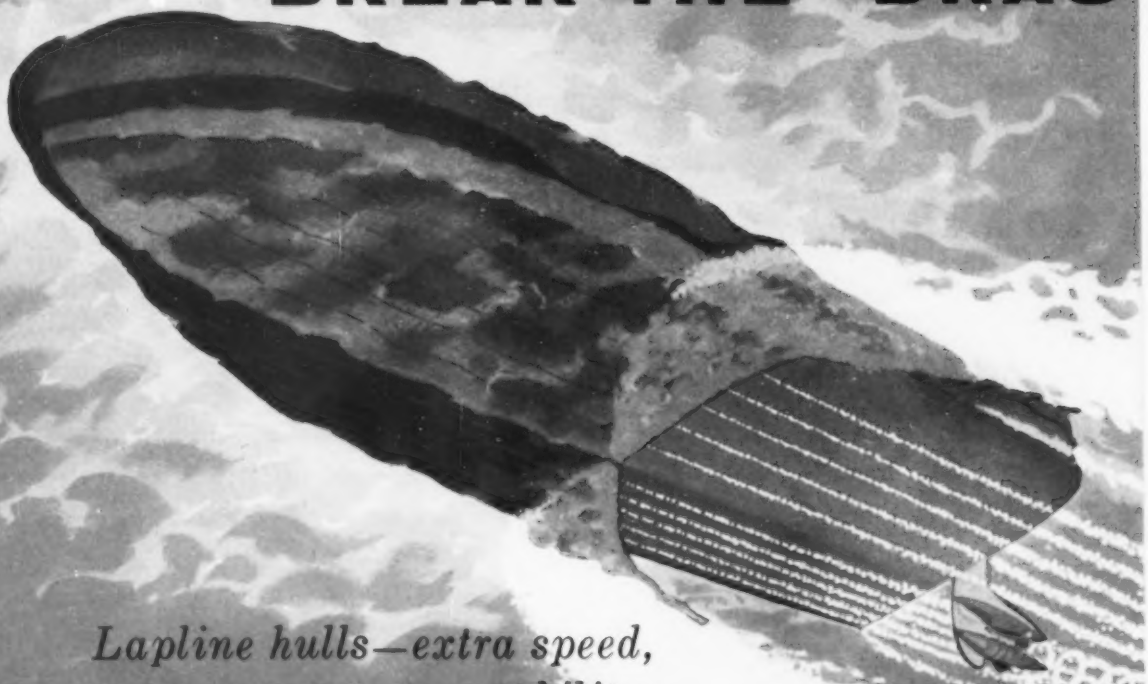
*"SAFETY MAKES A HAPPY SHIP"*

**RAYTHEON MANUFACTURING COMPANY**

**Marine Products Dept., Waltham 54, Mass.**

RAYTHEON *Excellence in Electronics*

# BREAK THE "DRAG



*Lapline hulls—extra speed, extra power, extra stability*

LARSONS are fast . . . lapline hulls create a mixture of air and water under the boat—breaking the "drag barrier." (Scientifically: water surface tension and flat surface suction.) LARSONS plane quickly even with smaller motors . . . the lapline hull lifts from the water.

LARSONS are powerful . . . lapline hulls thrust solid water at the propeller for more "bite."

LARSONS turn fast with safety . . . each lapline is a tiny keel that holds in a sharp turn. A lapline hull is just one of the distinct differences in LARSON.

**Paul Larson . . . Great boats come from careful hands, a critical eye, and a genius for subtle design.**

*when buying a boat . . .*

*Notice the difference in* Larson

**PARTIAL LIST OF DEALERS IN MAJOR CITIES** . . . **ALABAMA**—**Crow-Pruitt**, Mobile • **ARIZONA**—**Mesa Sports**, Yuma • **CALIFORNIA**—**Royce Photo**, Corona; **Clayton and Lee**, Downey; **Glaser Sport**, El Cajon and San Diego; **El Monte Auto**, El Monte; **Lawndale Marine**, Lawndale; **Cliffs' Boat**, Long Beach; **Shaw's Sports**, Long Beach; **Paul's Sporting**, Pasadena; **Miller Landing**, Pomona; **No. Shore Beach & Yacht**, Salton Sea; **Pratt Bros. Sport**, San Bernardino; **M. Thompson Marine**, Van Nuys; **Ken Enterprises**, Wilmington • **CONNECTICUT**—**Al's Marine**, Middletown; **Neptune Marina**, Norwalk • **FLORIDA**—**Chas. Murray Marine**, Gainesville; **Midtown Marina**, Jacksonville; **C. L. Duncan**, Orlando • **GEORGIA**—**Gunter Bros.**, Atlanta; **C. D. Widener Marine**, Augusta; **Beacon Marine**, Macon; **Southern Bait & Tackle**, Macon; **B. Greene Boats**, Savannah **HAWAII**—**Kona Supply**, Kailua & Kona • **ILLINOIS**—**Airmarine**, Chicago; **Chicago Marine**, Chicago • **INDIANA**—**F. Kokemiller Boats**, Indianapolis • **IOWA**—**Fitch's Sports**, Clinton; **Manawa Boats**, Council Bluffs • **LOUISIANA**—**Bonfanti Industries**, Baton Rouge; **EdgeLake Yacht**, New Orleans.

# BARRIER" WITH Larson

Thunderhawk . . . a unique boat with a reputation for smooth, stable running, and racing boat performance. *14'* $925, *16'* $1,040.*

All American . . . a big 16' runabout with flat-decked rear cockpit. One piece fiberglass hull formed by new Rand Gun process—a better boat for less cost. *With convertible top* $985 to $1,150.*

Surfmaster . . . a 19' cruiser with speedboat performance. Big, flat cockpit floors and bow sleeping space. *Convertible* $1,695, *hardtop* $1,795, *cruiser with flying bridge* $1,995.*

*All prices F.O.B. Boat Works. Complete accessories included. (Higher East, West, and Canada.)

**Write for free catalog: LARSON Boat Works, Inc., Little Falls, Minn. LARSON Boat Works in: Nashville, Ga. Ontario, Calif. Casper, Wyo. and Courtaulds Moulded Products of Canada Limited, Cornwall, Ont. (New Eng. & Upper N.Y.)**

**MICHIGAN**—**Lockman's Marine,** Detroit; **Allsports Marine,** Flint; **Otterbein's Sports,** Grand Rapids; **VanDerVoort Hdwe.,** Lansing • **MINNESOTA**—**Duluth Marine,** Duluth; **Hoel's Marine,** Hopkins; **Crystal Marine,** Minneapolis; **Inland Marine,** Minneapolis; **Larsen-Olson,** Minneapolis; **Russell's Marine,** St. Paul • **MISSOURI**—**Neal Boats,** Kansas City; **St. Louis Boat,** St. Louis • **NEBRASKA**—**Midwest's Marine Wonderland,** Omaha • **NEW YORK**—**Armstrong & Galbraith,** New York • **NORTH DAKOTA**—**Fleck Motor,** Bismarck; **Welter Marine,** Grand Forks • **OHIO**—**Gummere Sales,** Canton; **Cleveland Yacht,** Cleveland; **Payne Marine,** Toledo • **OKLAHOMA**—**Price's Sport,** Oklahoma City; **Outboard Sales,** Tulsa • **PENNSYLVANIA**—**Don Schlosser,** Allentown; **Great Lakes Marine,** Erie; **Marine Equipment,** Pittsburgh • **SOUTH CAROLINA**—**Marine Center,** Charleston H; **Gasques Sport,** Columbia • **SOUTH DAKOTA**—**Garness-Keller,** Huron • **TENNESSEE**—**Athletic House,** Knoxville; **De Soto Sports,** Memphis; **Cole's Sports,** Murfreesboro • **TEXAS**—**H. Watson Sports,** Dallas; **A-1 Boat,** San Antonio; **WISCONSIN**—**Eisele Marine,** Appleton; **Mendota Marine,** Madison; **Kleinmann Marine Serv.,** Milwaukee • **Dealers throughout Canada.**

NEW! 23, 25, 30-FT. CAVALIER CRUISERS AS LOW AS $3725




AS LOW AS $1995 NEW! 15 AND 18-FT. CAVALIER SPORTS UTILITIES




BIGGEST CRUISER VALUES EVER! Years ahead styling. Smooth V8 power (optional). Thrilling speeds. Choice of accommodations (30-ft. model sleeps 6). These beauties are all fully equipped with complete galley, dinette, private toilet room. New inboard Sports Utilities, sleek styling, gleaming Philippine mahogany finish, flashing speeds to 40 mph. See your dealer about deferred payment plans. Write for free brochures today! Prices F.O.B. Factory, subject to change.

Chris★Craft

Cavalier Boats Division • Pompano Beach, Florida
WORLD'S LARGEST BUILDERS OF MOTOR BOATS

# BOAT CLUB BEACONS

## U. S. INTERNATIONAL SAILORS GET HELP

ONLY a few weeks old, the United States International Sailing Association, as of Jan. 20, numbered 258 members and counted over $12,000 in receipts, according to a statement from Robert N. Bavier, Jr., Secretary of the Group. In addition to this initial success, he said, the Association continues to grow at a rapid pace, with new members and donations coming in nearly every day.

Here is a worthwhile association to which any boatman can belong. Purpose of the U.S.I.S.A. is to support and give financial assistance to American sailing teams and individual crew members selected to represent the United States at Olympic events.

Established chiefly through the efforts of the well known yachtsman Henry S. Morgan, who heads the organization, the U.S.I.S.A. has received temporary permission from the government to operate as a tax free institution, and it is expected that the tax free status will be made permanent in the near future. Dues and contributions are also tax deductible, Mr. Bavier reports.

Mr. Morgan, for his accomplishments in establishing the U.S.I.S.A., and for many other outstanding contributions to yachting in 1958, was awarded the Nathanael G. Herreshoff Trophy at the January meeting of the North American Yacht Racing Union.

The U.S.I.S.A. will insure that sailors in all income brackets can compete, with the result that American teams should be stronger than ever. Heretofore the high cost of competition discouraged many capable sailors. Private contributions helped, but they only did half the job, Mr. Bavier said.

Membership in the U.S.I.S.A. is available in several categories. Sustaining membership is $100, Contributing is $50, Regular $25, Associate Membership $10, and Junior (under 18 yrs.) $5. Yacht clubs and boat clubs may join for $25. Dues and contributions should be sent to the United States International Sailing Association, 37 West 44th St., New York 36, N. Y.

## BROWN UNIVERSITY TO HOST '59 CHAMPIONSHIPS

THE Inter-Collegiate Yacht Racing Association of North America recently announced that the 1959 Dinghy Championship finals for the Henry A. Morss Memorial Trophy will be raced at Brown University, Providence, R. I., June 17-19. Preceding the event will be two days of intersectional team racing for the Sir Thomas Lipton Memorial Trophy, June 15-16.

Both competitions will be held off the Rhode Island Yacht Club in Edgewood on upper Narragansett Bay in order to provide the best possible racing conditions, it was reported. The course is about five miles from Brown's campus and regular racing site on the Seekonk River.

The 1959 ICYRA of NA Dinghy Finals will be contested among the champion and runner-up colleges in the district eliminations (championships) of member associations: Middle Atlantic, Midwest, New England, and Pacific Coast. Massachusetts Institute of Technology won the event last June, and M.I.T.'s starting skippers, Dennis Posey and William Widnall, are still available, it is reported.

The same four districts are also expected to battle for the Lipton Trophy, now held by the Midwest Collegiate Sailing Association.

## ANNAPOLIS RACE AND N.Y.Y.C. EVENTS

DATES for the Annapolis-to-Newport Race, the annual regatta, the junior regatta, and the New York Yacht Club Cruise are set, the main event of the season to be the 468-mile ocean race beginning in the Chesapeake Bay. This is the race which alternates annually with the Cruising Club of America's Newport to Bermuda classic, and for the second time in a row the event will start at Annapolis.

Reason given for the decision to race from southwest to northeast is the popularity of the last event. In 1955 there were only 27 entries for the race to Annapolis. In 1957, 48 starters from 50 entries got away with the gun from Annapolis. Date for this year's start is June 20.

Other dates and places of New York Yacht Club events are published in POPULAR BOATING's Bulkhead Bulletins.

## 13 IS THE NUMBER

IN Division III, 2nd Coast Guard Auxiliary District, the 13 members of Flotilla 13, chartered on Dec. 13, 1958, are proud of their affinity for the number 13 but boast of a couple of firsts as well. They claim to be the first flotilla with 100 percent membership Certified as Inspector/Examiners, and 100 percent membership present in uniform at inception of the flotilla, according to Arthur F. Denkemann, Inspections Officer, Div. III.

In reporting on the activities of the newly chartered flotilla, Denkemann states that it is the intention of members to make 100 Courtesy Motorboat Examinations each during 1959, as-

(*continued on page* 36)

# The day the "Slippery Sam" took a peep at the deep

Someone should have counted heads before the "Slippery Sam" pulled away from the dock. Although no well-constructed craft is likely to go down this easily, overloading can cause serious trouble. When a boat is overloaded, any sudden shift of weight or even cross swells can cause it to tip over easily. Be sure you know the exact capacity of your boat *and* see to it that it's never exceeded.

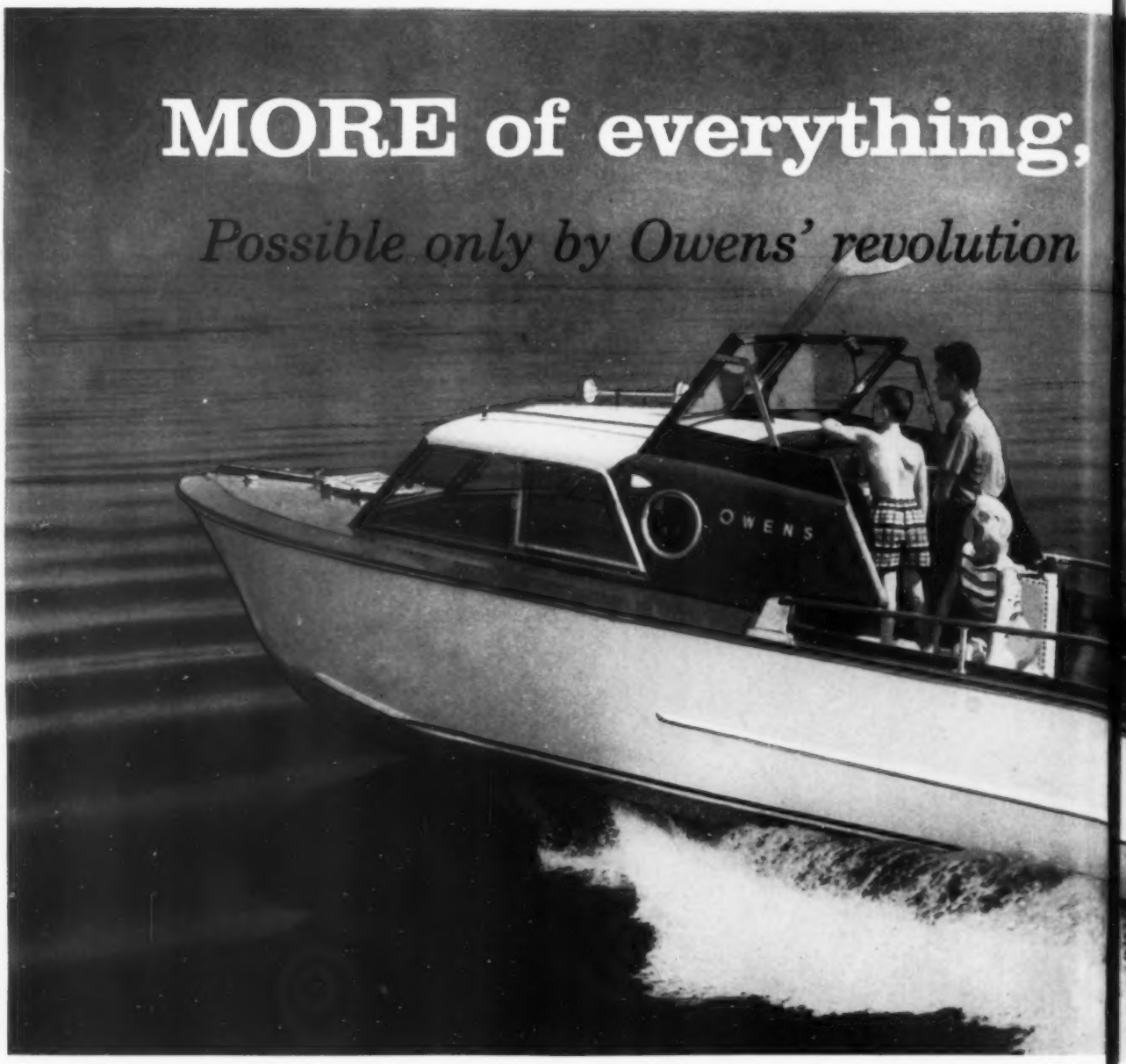
Be sure, too, that your outboard motor is in top working condition at all times. For "Happy Cruising" insist on clean-burning Esso Outboard Motor Oil. It reduces harmful engine deposits . . . cuts down on friction and wear. You'll find the one-quart screw-top can a real convenience. Get Esso Outboard Motor Oil from your Esso Marine Dealer or from the Esso Dealer who services your car.

Esso

MARINE PRODUCTS

**ESSO OUTBOARD MOTOR OIL**

**For inboards and outboards..."ESSO RESEARCH works wonders with oil"**




# NEW *Owens Speedship* V-8

You can pay less for a boat . . . and much more . . . but you can't buy more "boat-per-dollar" than the 22' Owens. To meet the great swing toward boating–Owens brings "big-boat" features to the economy price range. Just look at the exciting surge of line with the promise of thoroughbred performance. And does she deliver! Walks away swift and smooth with the soft-spoken muffled Marine V-8. But don't let that "purr" fool you . . . she's eager as a tiger shark. And there's that "big-yacht" feeling–with the wider beam and new "space engineering" for more roominess . . . in cockpit and cabin and bunks. She's steady, safe and sure . . . handles like a "big-boat"–for thrilling performance at every turn.

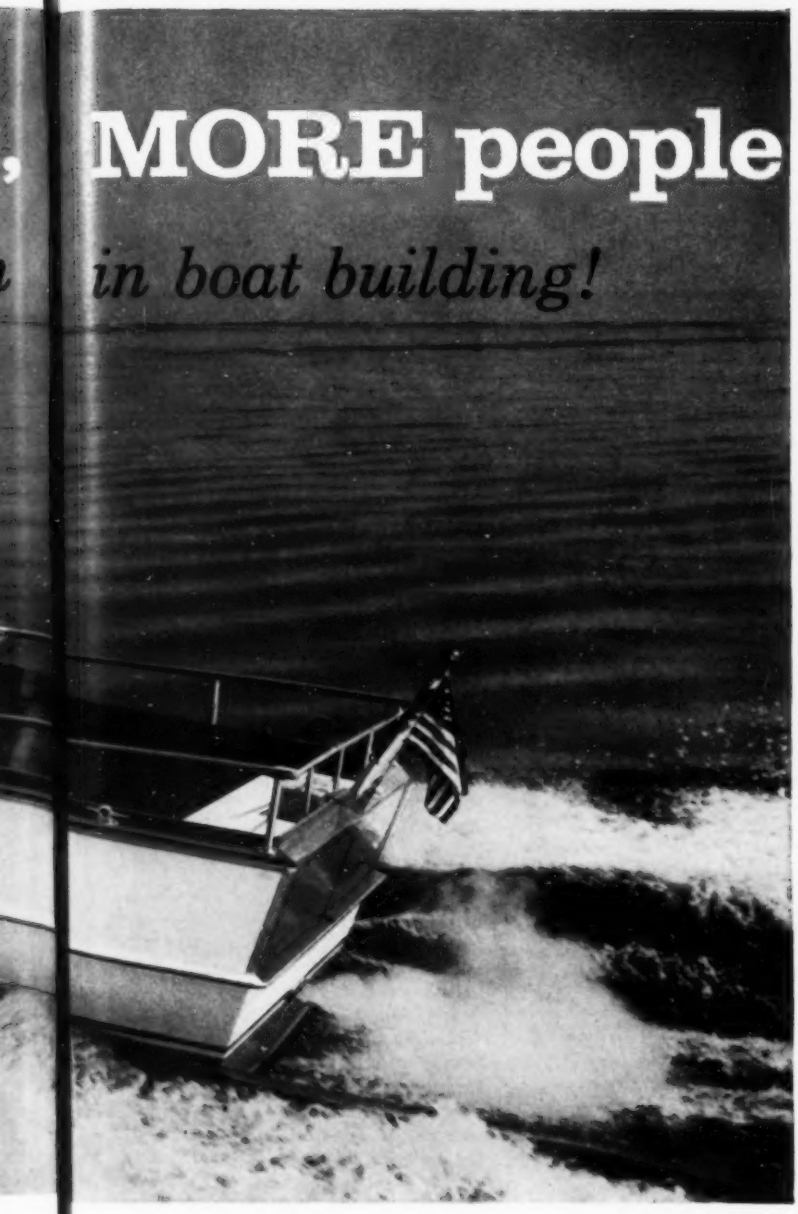
It's your "trick" skipper . . . take an *Owens* ride . . . before you decide, courtesy of your dealer, all you can lose is your "heart."

**PAY WHILE YOU PLAY! BUY THIS NEW OWENS FOR AS LITTLE AS $100 A MONTH.**

**Other models from $3995...**
**See your friendly Owens dealer.**

# MORE people want in a boat!

*in boat building!*



**MORE** Cockpit Space with port side cabin door. The engine has been moved forward to deliver better performance.

**MORE** control with starboard steering because torque is offset. Greater safety because of greater visibility on traffic side.

**MORE** "Living-Aboard" Space with wider beam means more space in cabin and bunk. Safer in cockpit protected by rail.

**MORE** Safety. Higher-installed exhaust line with raised-dual muffler prevents water from backing into the boat engine.

**MORE** Strength in all kinds of weather: girder-like longitudinal framing in addition to regular transverse frames strengthens the entire structure.

**MORE** Convenience, true walk-around promenade deck. More safety with toe rail.

**MORE** Trade-In value: All these exclusive Owens features mean longer life, greater durability, less depreciation, more trade-in.

# *Family Cruiser*

**MORE** Galley-Work comfort: "Space-engineering" with split galley-work area. More foot room, greater storage area.

**MORE** "Living-Aboard" luxury: Admiralty-styled cabin with full picture-window visibility, moving air, all-weather door.

**MORE** "Yacht-Type" details: Sloping, double-sheer line, tumble-home transom, elegant mahogany and chrome taffrail.

**MORE** Quality Materials: Mahogany frame and trim, U. S. Navy weldwood hull, safer, extra-heavy bottom.

**OWENS**®

SPEEDSHIPS

*Owens Yacht Co., Inc., Baltimore 22, Md.*

(*continued from page* 32)

suring an additional 1300 Coast Guard approved boats in the St. Louis, Mo. area. George S. Kyle is Commander of Flotilla 13, which is headquartered at Woodland Harbor, St. Charles, Mo.

Capt. Harold B. Roberts, Chief Director and Charles S. Greanoff, National Commodore, paid the West Coast a recent visit, calling on many newly elected Coast Guard Auxiliary officers from Long Beach, Calif. to Seattle, Wash. Plans were discussed for further expansion of the organization in 1959, with emphasis on Public Instruction Courses and Courtesy Motorboat Examinations, plus the establishment of new units.

The Coast Guard is asking for a nationwide search for items suitable for the Coast Guard's contribution to a historical exhibit at the Smithsonian Institution, Washington, D.C. Flags, insignias, pictures, various types of equipment and other items reflecting the background and evolution of the Service from the Revenue Marine, through Life Saving Service, Lighthouse Service, Bureau of Marine Inspection and Navigation, to the present day Coast Guard, are desired. Persons who know of material which might be appropriate are urged to contact the local Director of Auxiliary.

## POWER SQUADRONS TEACH COURTESY BY EXAMPLE

THE United States Power Squadrons reports that the answer to safe and sane recreational boating lies in common courtesy and knowledge of proper boat operation. The latter, USPS maintain, can be taught in a classroom to any interested student. Courtesy, the Squadrons feel, cannot be taught except by example, and USPS members, both in classrooms and afloat, try to show the friendship and courtesy that make boating same family fun.

The success of the Squadrons has resulted in an all time high of 80,000 registered for USPS piloting courses during the '58-59 training season, according to Rear Commander Anthony Scimeca, chairman of the piloting course. Growth of USPS membership is another sign of progress, although spokesmen for the Squadrons report there is not now, and never has been, any concerted program to expand the Squadrons organizationally. Growth has not been fast, but, it is reported, it has kept up with the expansion of boating as America's number one participant sport.

## CAPTAINS CLUB OFFERS COMPREHENSIVE SERVICE

CRUISE and chart service, port data, Diners' Club credit card, gasoline credit card, and guarantee check plan, are part of the Captains Club's service to members, according to a report from A. J. Pegler, vice president of the new "service club of the waterways."

The club's Service Guide for members contains cruising area maps and port data, plus descriptions and lists of Captains Club approved facilities in the boatman's area.

In addition to the comprehensive "charge it" plan, the club offers members gas-tax refund service, marine insurance, and boat finance information, plus a newsletter and "swap sheet." The club is also an authorized agent for C. & G. S. charts, he said.

Membership applications may be sent to Captains Club headquarters at 111 East 39th St., New York 16, N. Y.

## JAMAICA YACHTING DEVELOPMENTS

AN ANNUAL regatta in cooperation with the Royal Yacht Club of Jamaica, BWI, is under consideration by boating residents of the Ocho Rios section of Jamaica's Runaway Bay. Latest yachtsman to plan a home in the area is John E. Rodstrom, skipper of noted staysail schooner *Waterwitch*. President of the C. A. Hansen Yacht insurance firm, Mr. Rodstrom is a well known competitor in the offshore ocean races to Bermuda and Havana.

British West Indian Airways are now offering expanded service from Miami to Jamaica and the outlying islands for families planning Caribbean yachting vacations. — ⚓

**The largest selling glass boat fabric in the country**

Boat manufacturers, like Standard Glass Products, Inc., of Austin, Texas, makers of Glastron Boats, specify Trevarno Glass Boat Fabric for maximum strength and toughness. They know that seamless, molded fiberglass hulls, made of Trevarno Glass Boat Fabric, are stress-free, won't shrink, swell, rot or dry out.

Since 1948, Trevarno has been the largest selling Glass Boat Fabric in the country. Owners of boats of every type and shape have found that a Trevarno-covered hull, deck or cabin-top is the answer to their maintenance problems. For more information, contact your marine supply dealer or write direct to Coast Manufacturing & Supply Company, P. O. Box 71, Livermore, California. SALES OFFICES: 635 S. Kenmore Street, Los Angeles, California; 4924 Greenville Avenue, Dallas, Texas; 114 N. Main Street, South Bend, Indiana.

Trevarno

Glass Fabrics *make boating fun!*

***Relax in safety...in FIREFLITE 1959 Model Glastron***
Thanks to the toughest, strongest material ever designed for marine use...

# Hottest New Boats of the Year...

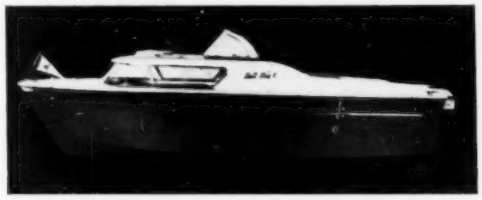
## Bell Boy for '59

**NEW 17' OVERNIGHTER**, first of its kind in fiberglass! Two bunks forward, bulkhead for lock-up stowage, more stowage aft, large cockpit.

Bell Boy's all-new line for 1959 features advance styling...sharp, clean lines, a spectrum of flashing new colors, new spaciousness for practical comfort and utility. Among the exciting new all-Bellglas models Bell Boy is introducing this year are the terrific OVERNIGHT cruisette and the fabulous BONANZA runabout.

The complete new Bell Boy line features rugged triple-braced transoms for today's greater power, new roomy stowage in every model, new stronger hull construction; increased gas capacity for extended long-range family cruising. **Step up** to a Bell Boy!

**NEW 16' BONANZA**, with beauty in every line, every detail from soft upholstered seats to silvery or gold trim, upholstered cockpit.



**THE 404 EXPRESS**, 19 feet of boating pleasure with new longer look, new forward hatch, twin bunks, head, sink, new self-bailing motor well, new stowage aft.

**Bell Boy** ®
BELLGLAS BOATS

BELLINGHAM, WASHINGTON • COLUMBIA CITY, INDIANA • HUNTINGTON STATION, LONG ISLAND, NEW YORK

# NEW AND NAUTICAL

## NEW SMALL BOAT RADIO NAVIGATION AIDS

Low contour RDF is easily stowed.

New 5" Radar is smallest in field.

IN THE FIELD of marine electronics, 1959 has produced many new developments which will bring "big ship" radio navigation equipment within the size and price range of the average boatman. The Piedmont division of Sperry Rand has introduced a miniaturized 5" Radar to sell at $1495.

The unit scans 360° around the boat, indicates relative bearings, has a 1 and a 5 mile range scale, and a minimum range of 40 yards. It operates on 32 or 12 volt power. Other new electronic gear includes a flat, portable Radio Direction Finder with marine and aircraft beacon, Coast Guard, and standard broadcast tuning bands. The transistorized unit will operate a full boating season on 1½ volt flashlight batteries, and will sell for $249. These new aids will be marketed by Triton Marine Products.— ⚓

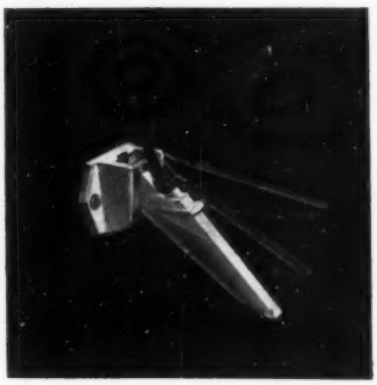
## BRAIDED LINE

SAILBOAT MEN who have fought stiff sheets and halyards will welcome this new yacht line made by the Samson Cordage Works of Boston 10, Mass. The line is claimed to remain supple even after hours of soaking in salt water. It does not swell, is easy on the hands, coils well, and runs freely through yacht blocks. The new line is made of braided Dacron over a Nylon center, and incorporates the mildew and rot-proof characteristics of these synthetic fibers. It is available at boatyards in all popular sizes.— ⚓

## NEW REPAIR KIT

A BOON TO OWNERS of fiberglass boats is the "Titan-Tite" epoxy repair kit, above, made by the Glass Plastics Corp., 1605 Elizabeth Ave., Linden, N. J. The kit is designed for repair of small holings and indentations that even the best skippers will encounter in docking or beaching. Pre-measured tubes of accelerator, several pieces of glass cloth, cloth mat for deep repair jobs, resin, cellophane backing sheets, and a complete instruction manual are included in the package. It may be used for repair jobs on any type hull.— ⚓

## AQUA-MATIC



A REFINEMENT to the Aqua-Meter line of small boat speedometers, is the weedless, non-fouling pitot tube, above. The new transmission unit is spring loaded so that striking submerged logs, and picking up sea-weed or kelp does not impair the functioning of the speedometer. Built from Dupont's non-corrosive nylon, the Aqua-Matic pitot tube is furnished complete with transom bracket. Marine speedometers for all types of craft are made by Aqua-Meter Division, Ketchara & McDougall, Roseland, New Jersey.— ⚓

Good Looks Start With The Right Marine Paint...

Good Looks Last With The Right Marine Paint...

# WOOLSEY "CAWLUX NAUTICOLORS"

Only the *right paint* can offer a color range wide enough to please every taste—not just a few conventional shades. With "Nauticolors" you choose from 70 smart, modern colors—22 ready-mixed plus 48 by simply adding a tube of Cawlux Colorant.

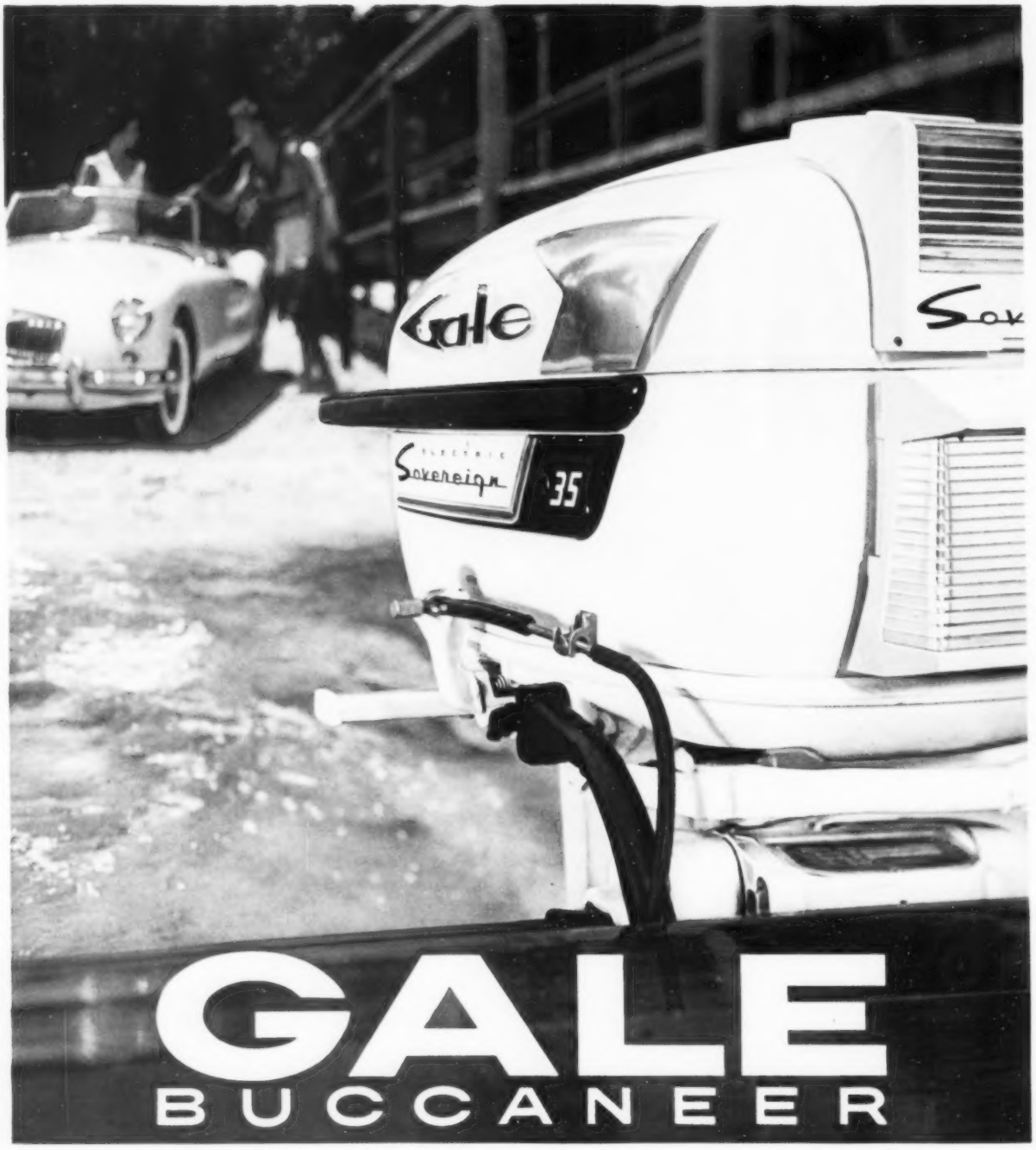
When you use Cawlux Marine Finish in one of the 70 "Nauticolors", you flatter and protect your boat's beauty. The finish resists cracking, dulling and fading. Gases and fumes can't produce ugly stains. Frequent wiping and scrubbing won't mar the gleaming lustre. ***Repaint with "Nauticolors" this season. Be your own judge.***

WOOLSEY®
Serving at Sea Since 1853

CONFIDENCE IN BRAND NAMES SATISFACTION

CAWLUX® Nauticolors®

**C. A. Woolsey Paint & Color Co. Inc.,** 205 East 42nd Street, New York 17, N. Y. Warehouses: Brooklyn, N. Y., Plymouth, N. C., Jacksonville, Fla.




# GALE BUCCANEER

## Smart, tough, and terrific

The new 35 hp. Sovereign is an exciting outboard motor, equally at home at a swank club anchorage or on the racing waters of a North Woods river!

This handsome husky, in spray-white and black, comes with trim, functional lines and smart, custom styling—and underneath, *pure* power!

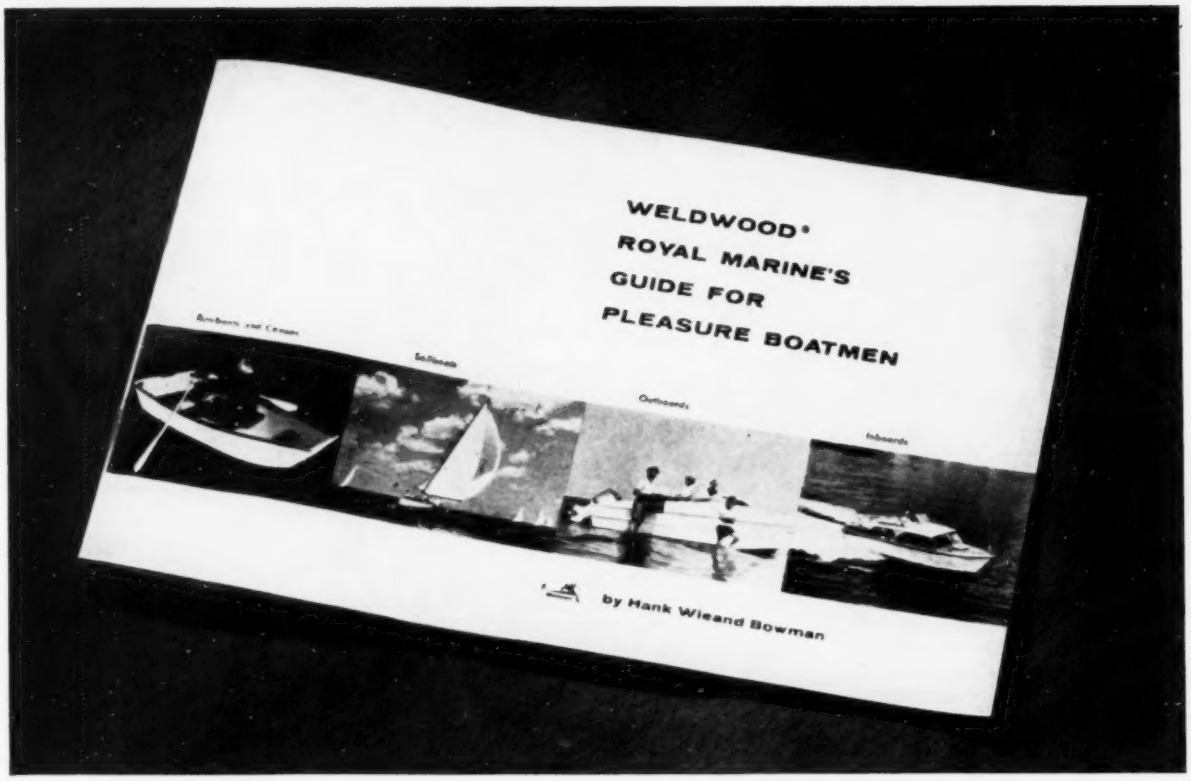
Yet it takes no time at all to master mighty Sovereign! Start it with a quick, easy turn of a key. The hottest spark of any outboard motor comes from GALE's Magic Magneto.

With gentle finger tip control, you can send Sovereign racing at over 30 m.p.h., or tame it down to a slow idle. Fishing, water-skiing or cruising with the family, GALE Sovereign is the perfect playmate.

GALE offers a model for your every need, in 3, 5, 12, 25 and 35 hp. . . . Write to us today for the name of your nearby GALE Buccaneer dealer, and a free catalog.

35 H.P. BUCCANEER BY Gale

Gale Products, Dept. 1449, Galesburg, Illinois, Division Outboard Marine Corporation.




# New booklet helps you select the boat that's best for you

Here, in one handy booklet, you'll find expert advice on what to look for to get the most fun and value out of the boat you buy. Written by Hank Wieand Bowman, one of the nation's top authorities on pleasure boats, the book is crammed with 32 pages of pictures and information. It answers the questions we've been asked most often by people interested in buying a boat . . . questions such as:

- *How do I decide which type of boat to buy?*
- *What design features are best for water skiing?*
- *How much will a "family boat" cost?*
- *How do I lay up my boat for the winter?*
- *What's the best way to finish a plywood hull?*
- *How big a motor should I buy?*

**Don't miss out on this opportunity. Mail the coupon with just 10¢. Do it now.**

**WELDWOOD® ROYAL MARINE PLYWOOD**

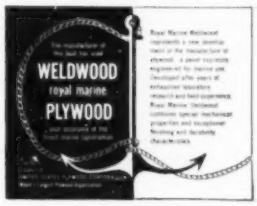
*The Marine Plywood with the Gold Edge*

WELDWOOD ROYAL MARINE DOUGLAS FIR

WELDWOOD ROYAL MARINE PHILIPPINE MAHOGANY • WELDWOOD ROYAL MARINE DURAPLY®

WELDWOOD ROYAL MARINE GRID PATTERN PERMAPLY®

*Products of United States Plywood Corporation*




**Look for this label**
on the boat
or kit you buy.

SEND FOR NEW BOOKLET

**United States Plywood Corporation**
**Dept. PB4-59, 55 West 44th St.**
**New York 36, N. Y.**

Please send me a copy of Hank Wieand Bowman's new booklet, "Weldwood Royal Marine's Guide For Pleasure Boatmen." I enclose 10¢.

**NAME**.....

**ADDRESS**.....

**CITY**.....**ZONE**....**STATE**.....

NEW
TUFF
EPOXY PAINT

CHARLIE M.

**"I'm sure you'll like THIS REALLY DIFFERENT KIND OF BOAT PAINT"**

"Anybody whose been around boats lately has heard about epoxy resins. They certainly hold fast. For some time, we have been supplying Titan-Tite epoxy paste and liquid for repairing boats – Fiberglas* covered or molded, wood or metal. Now we have an epoxy paint. It's a great combination of the strength of epoxy with color added.

"It has a good name, too . . . TUFF . . . because that's just what it is . . . TUFF. It's different from any marine paint you've ever used before – tough, hard and longer lasting.

"Yes, this new epoxy paint finish is really TUFF . . . to time and exposure . . . to sun and freezing . . . to salt and fresh water . . . to abrasion and scuffing. TUFF is more than a decorative finish. It'll save you hours and dollars formerly spent on maintenance and overhauling."

Selection of 8 different colors plus black and white.

**TUFF** – Another product of

BOAT-ARMOR

Ask your marine dealer for a TUFF Epoxy Paint color card and an instruction sheet on "How to Paint with TUFF." Or write to –

**GLASS PLASTICS CORPORATION**

1605 West Elizabeth Avenue
Linden, New Jersey

*TM Reg. OCF

# BOATING IN THE NEWS

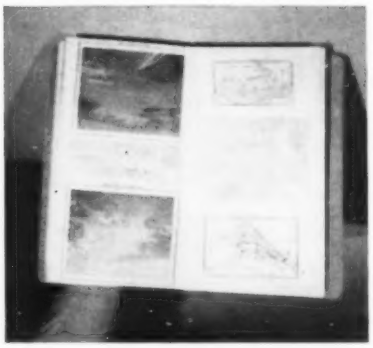
## EXPERIMENTAL SMALL CRAFT CHARTS GET GOOD RECEPTION AT BOAT SHOWS

EXPERIMENTAL small craft charts prepared by the Coast and Geodetic Survey are getting an enthusiastic reception from boatmen, Rear Admiral H. Arnold Karo, USC&GS Director, reported in a recent letter to Popular Boating.

Displayed at the New York, Chicago and San Francisco boat shows, the experimental charts will be distributed to Coast Guard Auxiliary units, Power Squadrons, Outboard Clubs of America, yachting associations and boating magazines for further evaluation. The charts, which cover the 100 miles of the Potomac River between Washington, D. C. and its mouth at Point Lookout, Maryland, were prepared in four different formats. Suggestions made by boating organizations will influence choice of formats that will be used for charts covering other important waterways.

A majority of boatmen have expressed preference for the Series B chart, Admiral Karo reported. This consists of three sheets, 4-fold, at a scale of 1:80,000, with 1:40,000 scale of the Washington area. These charts are the only ones in the experimental series supplemented by photographs of prominent land features and harbors.

The other formats are: Series A—one sheet, 8-fold, printed on both sides at a scale of 1:80,000 with Washington area at 1:20,000. Paper size is 15 by 58 inches. Series C—ten sheets, loose leaf or fixed binding, scale 1:80,000, on 8½ by 14-inch paper. Series D—eight loose leaf sheets, scale 1:80,000, on 10¾ by 16¼-inch paper. Each series covers the same area and contains the same primary information. Large-scale inserts of active boating areas supplement the main chart. Other supplemental descriptive information includes tables that show tides, depths, facilities such as berths, launching ramps, hull and engine repair shops, marine railways, electricity, toilets and showers, meals, and motor and rowboat rentals. The tables also show where the boatman can get bait, tackle, gasoline, diesel oil, water and ice, groceries, hardware and bottled gas.



Series B chart

## NEW COAST GUARD REGULATIONS NOW IN FORCE FOR BOATMEN

REGULATIONS implementing the Federal Boating Act of 1958 are in force as of March 10, the U. S. Coast Guard announced recently. The regulations were adopted by the Merchant Marine Council of the Coast Guard after considering views, comments and opinions on the proposed regulations. They were received at the December 9, 1958 public hearing in Washington, and also by mail from persons and organizations to whom more than 35,000 copies of the proposed rules were mailed prior to the hearing.

Changes made are: (1) Individual "Boating Accident Reports" will not be released, but they may be used for statistical studies under certain conditions. (2) The minimum height of "numbers" has been reduced from the proposed 4-inch size to 3 inches. (3) Fees may be paid by means other than a money order.

Copies of the new regulations may be obtained for 15 cents from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

A new 16-page leaflet that folds to fit a number 10 envelope has been printed by the Coast Guard under the title "Pleasure Craft" and contains the highlights of the Federal Boating Act of 1958, the latest on boating equip-

(*continued on page* 44)

# Don't start this year's boating with last year's spark plugs!

**Before you take to the water, replace those old plugs with new plated Champion marine spark plugs. You'll get full power... easy starting... and more hours of fun from a tank of gas!**

Those old spark plugs of yours have fired millions of times.

In an outboard, for example, during *one hour* of running at 4000 rpm, a plug fires 240,000 times. That's almost *two and one-half million* times in just 10 hours. And every single spark is like a tiny lightning bolt – slowly but surely blasting away the firing points of a plug. The gap between the electrodes finally becomes so big a spark can't jump it every time.

When that happens, your plugs begin to misfire. Fuel is wasted. Power is lost. Your motor runs rough. It's hard to start. But don't blame your motor. And don't blame your old plugs. They've done their duty. Retire them.

Replace them with *plated* marine Champions. All exposed metal surfaces of these new silver-colored Champions have a special protective finish that guards against rust. Another special feature is a secured gasket that won't drop off during installations. These new Champions are excellent for carrying as spares, too. They're the *only* spark plugs in a completely waterproof pack.

And Champion Spark Plugs are tops in performance. For example, the last 13 Gold Cup races were won with Champions. In the 1958 National Stock Outboard Championships at Miami, 9 of the 10 class winners were powered by Champion Spark Plugs.

It costs very little to be *sure* of the power that can give you a million dollars worth of boating fun. So start this summer with a fresh set of the world's finest marine spark plugs – *Champion Spark Plugs.*

CHAMPION SPARK PLUG CO., TOLEDO 1, OHIO

*DEPENDABLE 5-RIB* **CHAMPION** *SPARK PLUGS*

EVERY MAJOR OUTBOARD MAKER USES CHAMPION SPARK PLUGS

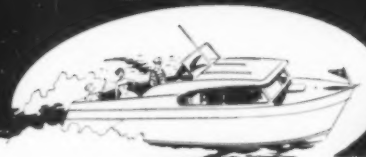
MODEL DF-2

new
TRANSISTOR
RADIO

direction finder kit

only $69.95

HEATHKIT

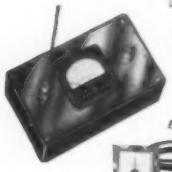


OTHER HEATHKIT
"DO-IT-YOURSELF"
MARINE KITS . . .

Model DF-1
Radio Direction
Finder Kit $54.95

Model MC-1
Marine Converter & Battery
Charger Kit
$42.95

Model CI-1 Battery
Charge Indicator
Kit $16.95



Model PM-1
RF Power
Meter Kit
$14.95

Model RI-1 Rudder
Position Indicator
Kit $14.95

Model FD-1 (6 & 12V)
Fuel Vapor Detector
Kit $35.95

- *doubles as a portable radio*
- *self-contained, self-powered*

Now, at less than the cost of an ordinary portable radio, you can own this two-band transistorized portable radio direction finder. Ideal for use on boats, light aircraft as a reliable and accurate navigational aid. Doubles as an entertaining portable radio for the home, at the beach or in the car. Covers the marine and aircraft beacon band from 200 to 400 kc and the broadcast band from 540 to 1620 kc. Takes directional "fixes" on aircraft and marine beacons as well as standard broadcast stations. The 6-transistor circuit is powered by 6 standard flashlight batteries, lasting up to one year under normal operation. Dial light provided for night operation. Measures only 8" H. x 9½" W. x 5" D. Handsome case is two-tone green with black control knobs.

**EASY TO BUILD**
**NO PREVIOUS EXPERIENCE REQUIRED**

Complete construction manual contains easy step-by-step instructions, large pictorial diagrams, and all the information you need for quick assembly. No previous experience in electronics or kit building required. Order today and see for yourself how easy it really is!

**SEND FOR FREE CATALOG**

*Write today for free catalog describing these and other marine kits and Heath's full line of electronic equipment.*

**HEATH COMPANY,** Benton Harbor 3, Mich.
a subsidiary of Daystrom, Inc.

name

address

city & state

## NEWS

(*continued from page* 42)

ment requirements, suggested safety practices, and information about the Coast Guard Auxiliary and its activities. The new publication, number CG-290, replaces the old "Motor Boats" and provides a handy condensation of federal laws and regulations pertaining to boat operation. Copies may be obtained by writing: U. S. Coast Guard Headquarters, Washington 25, D. C.

# SEVEN DRIVERS NAMED TO GULF HALL OF FAME

SEVEN POWERBOAT drivers were elected to the Gulf Marine Hall of Fame prior to the National Motor Boat Show in New York this year. The newly elected drivers are: Stanley R. Armstrong, Jr., Chelmsford, Mass.; Paul Bauer, Deer Park, Ohio; Robert Baxter, High Point, Md.; Hubert Entrop, Seattle, Wash.; Julius E. Howard, Largo, Fla.; Carter D. Parrish, Jr., Fredricksburg, Va.; and Alton Pierson, Queenstown, Md.

Baxter, Entrop, Parrish and Pierson also were selected for POPULAR BOATING's 1958 Speedboating Honor Roll.

Entrop was saluted for piloting his home-made Class F outboard hydro for an average 103.597 mph over a measured mile, setting a new world's record. He also won the One Mile Championship Trophy, annually awarded by APBA to the driver who sets a new class one-mile speed record by the highest percentage over the previous mark. His record run upped the old mark of 75.402 mph by 37.4 per cent.

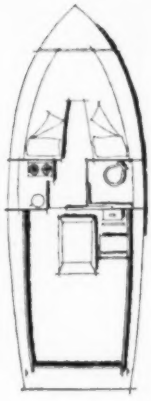
Armstrong is an outstanding driver in four classes of APBA competition. He took 19 firsts and 8 seconds in AU runabout class in 48 heats entered. His *Pesky Six* took 31 firsts and 7 seconds of 50 heats in BU runabout class. Bauer raced his *Kat-N-Van* to 17 firsts and 6 seconds out of 31 heats in the 48 cu. in. hydro class in APBA regions #3 and #4.

Baxter drove his *Gale III* to high point honors in the 136 cu. in. hydro class, and won the historic National Trophy, which dates back to 1905. This trophy and the equally ancient Interstate Trophy for 135 cu. in. hydro high point honors, are awarded annually by the APBA under a deed of gift from the National Association of Engine and Boat manufacturers. Baxter amassed 7,832 points to top his nearest rival, Linford Palmer of Lewes, Del., with 5,257 points.

(*continued on page* 46)

**CRUIS ALONG** offers you the big difference... painstaking selection of materials and meticulous workmanship developed through 84 years experience in boat building. This is your assurance of unequalled seaworthiness. You cruise in confidence with Cruis Along.

**PELICAN 22'** — *Cruis Along's Super Hy-plane hull has been thoroughly tested for speed and stability on the roughest stretches of water. Superstructure and interior are distinctively designed and color styled. Roomy dinette with formica topped table converts into comfortable berths for three. Hanging berth available. Spacious, completely-equipped galley. Enclosed marine toilet. Generous storage space. Roomy cockpit.*



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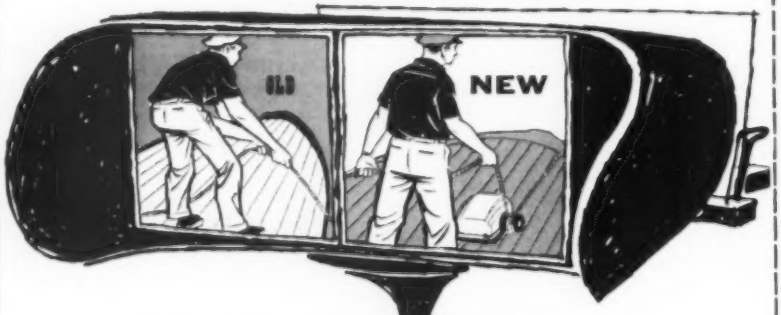


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## NEWS

(*continued from page* 44)

"Duke" Parrish won 26 firsts and 4 seconds in 38 heats of 135 cu. in. hydro class competition, in his *Go Gal Go*, and amassed a total of 5,934 points to win the Interstate Trophy. Howard drove his *Florida Lady* to 8 firsts and 4 seconds in 16 heats entered in the 266 cu. in. hydro class. He set a new world's record of 89.917 mph over a five-mile course in Baltimore in August, and also won the Daniel J. Murphy, Sr., Memorial Trophy.

Pierson set a new world's record for a mile in the 280 cu. in. hydro class with a 102.119 mph average at the Port Indian Regatta in Norristown, Pa. And he holds the world's five-mile record in this class of 79.017 mph, set in October at Elizabeth City, N. C. He entered 46 heats in 1958, winning 19 firsts and 10 seconds.

## BRITISH YACHTSMEN PLAN 1961 AMERICA'S CUP CHALLENGE

PLANS for a new British assault on the America's Cup in 1961 appeared to be in the works as English yachtsmen considered building four 12-meter boats to compete for the right to challenge, according to a recent report to POPULAR BOATING from London.

Hugh Goodson, chairman of the syndicate that built Sceptre, said members of four potential British syndicates were to meet in London to decide whether to challenge again in 1961. The four yachtsmen who are considering building boats are Goodson; Owen Aisher, owner of the old 12-meter *Evaine;* Sir Giles Guthrie, a banker and member of the Royal Yacht Squadron; and Ronald Burton, owner of the ocean racer *Norlethe.*

The four yachts would compete in a series of trial races similar to those used in this country to select the America's Cup defender. Cost of the new 12-meters would be an estimated $398,000 each.

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# *At last* — a BOAT FENDER that can be hung HORIZONTALLY or VERTICALLY from the SAME PIECE OF LINE

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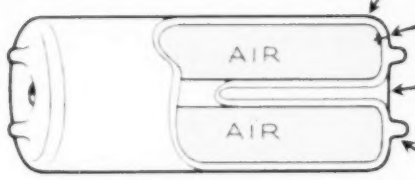
**BETTER BOAT BUMPERS**

***— the Perfect Marine Fender***

SOFT AS A TOY BALLOON,
**TOUGH** AS A TRUCK TIRE



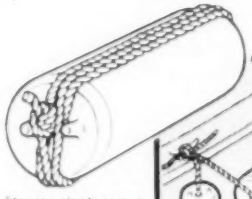

Par-Air Better Boat Bumpers are made of an extremely tough and elastic rubber-like compound that is non-squeaking. They are centrifugally CAST — *not molded* — to obtain uniform wall density for highest strength. They have NO SEAMS.

Just 2 pounds air pressure provides optimum springiness, but resilience can be varied to owner's preference with pump provided (see below). Football type valve is leakproof even under shock of extreme impact.

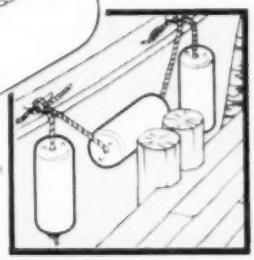
Straight through axial passage eliminates customary cheeks and grommets. Rope slips through easily even when wet and a simple knot on the end keeps bumper from slipping off. It is impossible for the line to rip out.

Stowing cleats simplify storage. Wrap the line lengthwise around the bumper and tuck the end under. The cleats keep the rope from sliding off and tangling.

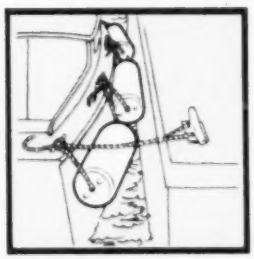
## Par-Air Bumpers meet *EVERY MOORING CONDITION* perfectly, quickly, easily



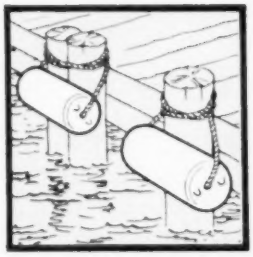
Stowing cleats secure line lengthwise around Par-Air Bumper. No trailing ropes to trip over.



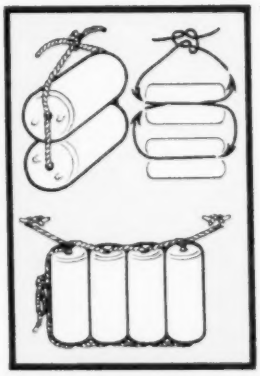
Without re-tying, Par-Air Bumpers can be hung either vertically or horizontally to suit structure of dock, position of rub rails, flare of bows, or tide conditions.



Against concrete docks, Par-Air Bumpers hung horizontally will roll up and down between boat and wall as the boat rolls. Will not scrape the paint or the bumper.



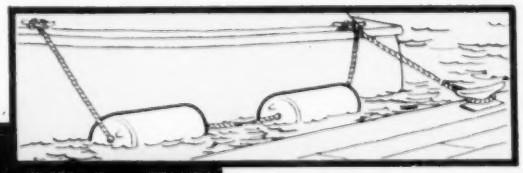
When mooring against pilings, hang bumper horizontally on piling for full protection in shifting winds or current. In very rough water, double up as shown at right.



Two Par-Air Bumpers can be rigged to hang horizontally on a single line. The line passes twice through the upper bumper, forming a figure "8" and the ends are tied to the piling or cleat.

Four Par-Air Bumpers, strung together in the same manner as above, form a perfect collision mat.

When moored at low floating docks (right), two or more Par-Air Bumpers on a single line can be dropped overside to float between boat and dock.



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All photos by Ann Davison

A writer who is an expert sailor as well, Miss Davison crossed the Atlantic alone under sail in a 23-foot sloop several years ago without losing her enthusiasm for the sea. Always willing to meet new challenges, she agreed to try water travel under outboard power. At left she reflects her enthusiasm on her return to Fort Lauderdale.

# KEY WEST BY OUTBOARD

## A 350 mile voyage from Miami to Key West and back, alone in a 14-foot runabout, proved in ten days to this cruising adventuress how simple boating can be

By Ann Davison

ONLY THE RICH or very poor can afford to cruise under sail, otherwise you must devote your life to cruising or give it up altogether. Well, that's how it seemed to me, and confronted by these alternatives and desiring neither I cast about for some other form of water transportation that would be less of a strain on time, energy and pocketbook than that imposed by the wind machines, and what came up were the little outboard runabouts with some highly appealing features. The small boat with an outboard motor, like a car, is ready when you want it without requiring constant attention. Maintenance is comparatively negligible and well within the province of a do-it-yourself plan. It can be kept at home, thereby obviating pumping worries and boat sitting when the weather is bad. It can be trailed to different starting points which makes its range very flexible, and, a minor detail but one that can become pretty tedious, it does away with the monotony of the home stretch. Such attractions were obvious to me without any previous experience.

My sailing friends, resistant to any form of nautical progress, said "outboard" as if it was a dirty word and skeptically asked if I knew anything about outboard motors. I said I wasn't a mechanic but that didn't stop me from driving a car, and casual observation of the waterways indicated that it shouldn't stop me from driving an outboard either. They made long arms and said I would never be able to

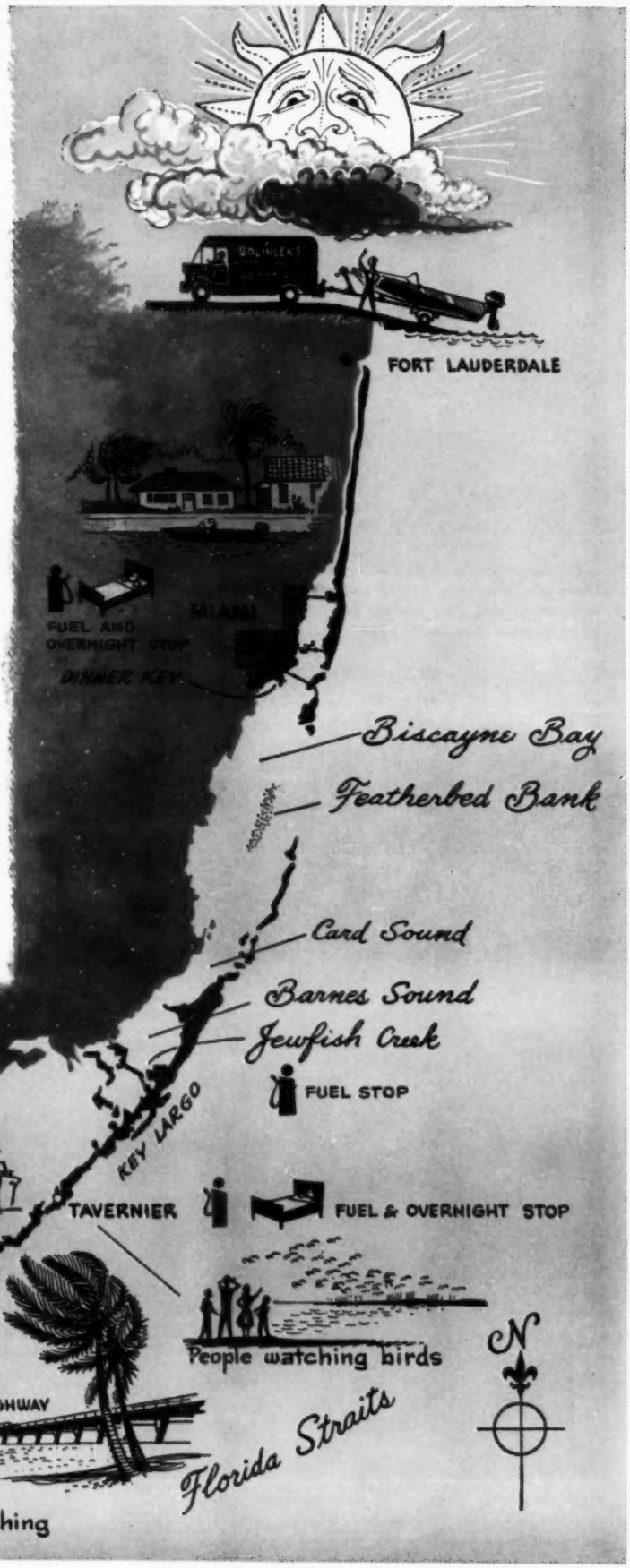
start one, but I pointed out that times have changed and outboards are started electrically these days and I reckoned I could turn a switch as well as anyone.

But—CRUISING—?—my sailing friends made tall eyebrows.

It depends, I argued, on what one is looking for in cruising. If it is necessary to prove something by battling the elements or threshing it out with an ocean, then of course, an outboard is nonsense, but if one simply wants to make a pleasurable tour by water, there are many sheltered and interesting places where the operation of an outboard runabout would be ideal. Speed should enable one to avoid bad weather, and one could stop at motels overnight, or if inclined, camp out.

The more I thought round the idea, the better I liked it, especially as

KEY WEST continued on page 50



Instead of carrying heavy and clumsy bundles along a narrow dock, the author points out, the outboarder can load his (or her) boat at home and then trailer comfortably to the water. Plastic bags protect Miss Davison's gear as she fits them into her Carter Craft Skylark runabout in Fort Lauderdale.

right on my doorstep there was the fascinating cruising ground of South Florida. Keys run all the way from Miami to Key West, 175 miles of bays, creeks and islands, untouched by hand so far as I was concerned, never having had a suitable boat for its exploration. To drive a little boat from Fort Lauderdale, where I was then living, to Key West and back, would be a good test of the feasibility of miniature cruising, so I lost no time in putting the plan into operation. Too impatient to wait for summer, I set out whilst the idea was still hot. In the coldest weather the south has known in years.

The boat for the venture was a 14-foot Carter Craft "Skylark," and power was supplied by an Evinrude Fastwin Electric 18. There was nothing complicated or unusual about this rig, and it could have been easily assembled at home. But at the start of any new venture, however simple, I always like to go to the experts, for there are invariably pitfalls for the unwary, and the expert with a solid backing of experience and a reputation to guard, can save one falling into them, and so save much time and heartache. The expert I went to in this case was Ben Bolinger of Fort Lauderdale, who with his henchmen, spared no time or effort in putting things together so there could be no possibility of a hitch and saw to it that I had at least a rudimentary grasp of what was going on.

First stop was observed by pelicans atop pilings at Miami's Dinner Key as Ann Davison photographed them while pulling into the Santana's marina.

We went for a trial spin the day before departure. I had never handled a boat like this before. Had never in fact been in one. "Open her up," said Ben on a quiet stretch of river. We got a boot in the back with the acceleration that gave me the same old thrill I used to get taking off in an airplane, then Ben said, "Now pull her round, come on —hard over." Oh no, I thought, the water's too cold, but the little Skylark came round in a hideously tight turn with no trouble at all, being apparently as near foolproof as possible. Sitting at a wheel, behind a windshield with the foredeck in front of me like the hood of an automobile, it was for all the world like driving a sportscar, and at first this feeling was so strong at times my foot sneaked out involuntarily for the clutch!

The departure was novel. For one thing I actually set out on the day designated for departure, which had never happened to me before. One of the more tedious aspects of cruising has been explaining to people to whom you had said goodbye the day before why you are still here today. Then instead of taking my gear to the boat—piece by piece along a rickety dock—the boat was brought to my gear and loaded at my door. When the stuff was stowed aboard, in rubber bags, under the foredeck, Ben drove to a launching ramp on the New River, Fort Lauderdale, where the Skylark was slipped off the trailer into the water, and there was nothing to do but get aboard, turn the switch and drive away. The simplicity of getting under way never ceased to fascinate me throughout the trip.

Not knowing quite what I was in for, and wanting to keep the trip flexible I had not made any reservations ahead. I understood that the Keys were lined with motels

The pleasant docks at the Key Haven Motel, Tavernier, Dinner Key, were the reward at the end of the second day's run after the small boat had proven it could take rough seas when handled carefully. Goal for birds lovers, Tavernier turned out to be an ideal spot to wait out small craft warnings.

all the way to Key West and trusted to luck to there being a vacancy when needed, the only exception to this plan being Miami, the first stop, where I had arranged to visit with friends. The Intracoastal Waterways from Fort Lauderdale to Miami is mainly urban (enhancing the sports-car feeling) but interesting as all vistas from the water are interesting because the viewpoint is different, one is detached and there is time to take in what one sees. Speed limits, congestion and ordinary good manners compel one to drive slowly over this stretch, so it took three hours and twenty minutes and five gallons of gas to cover the 30 miles to Santana's, Dinner Key, on the south side of Miami, where I left the boat for the night and went ashore, for the first time in my life *tidy* on arrival.

Mr. Roncallo, president of Santana Marine Service Inc. is naturally interested in outboarders, but he is also sympathetic for he drives outboard motors himself, over to the Bahamas no less. He drove a 16 footer with two 35 H.P. outboard motors alone to Nassau, which made my effort seem puny, but he showed a kindly interest all the same and insisted on donating a third Cruis-a-Day tank (there were already two on board) because, "you can't always find a gas station when you want one," and, although, I never had to use it as an emergency measure, its presence inspired a warming sense of assurance.

I set my sights for Tavernier, Key Largo, next day, and started out early in the morning on a compass course for the Featherbed Bank, 13 miles from Dinner Key, and the beginning of some fanciful key nomenclature which gets fancier as you go along. Long Arsenicker, The Boggies, Cowpens Cut, Porjoe, Cudjoe and Knockemdown Keys being some of the examples that set your mind wondering as to why, how and possibly who.

It was a grizzling morning with low cloud, an indeterminate horizon and an unpromising weather report, but Biscayne Bay was calm and the Skylark flew over the surface of the water as effortlessly as the bird she was named for, and delighted my hotrod heart. Used to things on the horizon staying that way for hours at a time, I was completely fascinated by the rapid change of scene and the way channel markers came hurtling along to meet me. I had visions of making Tavernier by midday and spending the afternoon sketching or exploring, but life isn't always that simple. The promised bad weather appeared before we even reached the Featherbed Bank and in no time a headwind whipped the shallow waters of the Bay into short white seas and gave me a chance to see how the little boat behaved in more aggressive conditions. I expected to have the miseries, but the Skylark surprised me by exhibiting entirely unsuspected seaworthy qualities, and somewhat abashed I realized I had thought of her only as a fair weather craft. Progress was slowed down of course, but she never shipped a drop of water. I was dry and more sheltered than I had ever been in a boat before in comparable conditions and it was a very pleasant change.

KEY WEST continued on next page

The passing boat scarcely disturbed the exotically colored tropic birds settling down at sunset. Runs were planned to reach destination before dusk.

Some Key motels are right on the water, making it easy for the boatman to load for an early start.

While part of run was taken out of sight of land, other stretches passed through intriguing jungle.

We buffeted our way out of Biscayne Bay, through Card Sound and Barnes Sound and had a little respite in Jewfish Creek where I gassed up at the Gulf Dock, pulling into the side as one might pull off the road into a service station. But this is in fact the only place one can do this along the Keys without deviating some way from the Channel. The Channel, part of the Intracoastal Waterways system, is well marked, though the markers are often several miles apart and one has to follow a compass course from one marker to the next. Although it was not strictly necessary to do so I preferred to keep to the Channel, mainly because it was the shortest way, and, except where it ran through creeks, it kept pretty well offshore so that habitation was muted by distance imparting a "desert" atmosphere to the islands and a "far away" feeling to the trip.

The run continued to be dusty so it was not until late in the afternoon that I tied up at the dock of Herb and Helen Alley's Keyhaven Motel where all sorts of things go on. It is a bird-watching center, and a good people-watching center too, for geologists, marine biologists, malecologists, conchologists and naturalists flock to the place to examine and search for the flora and fauna of the offshore reefs, seabeds and islands with Herb Alley in his *Spoonbill*. And, as Herb says, eyeing his collection of corals, shells and magnificent photographs of birds in flight, "Some of it is bound to brush off on to you." Nor do you have to be any more than a plain tourist to be made welcome, as one of the cruising guests said to me, "You won't find any place like it. I stopped here for gas eight years ago on the day to Marathon and never would have made it yet, only we took Herb and Helen with us one time."

It was no hardship therefore when it blew 50 miles an hour next morning, and I was kept in port so to speak.

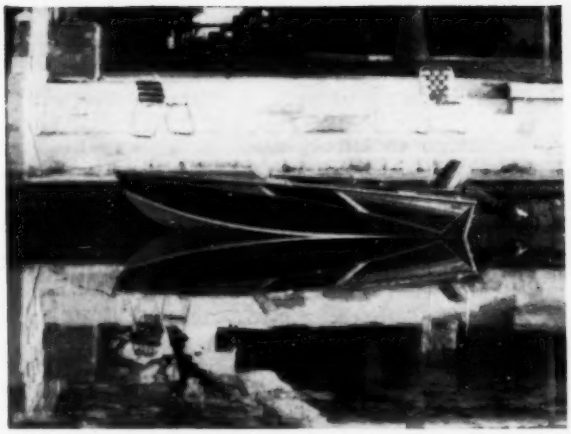
As soon as the weather cleared I "drove" to Marathon, only 32 miles away, but there one has to decide which of the two courses to take for Key West. One is "outside" on the south or Florida Straits side of the Keys, and the other "inside" on the north side of the Keys in Florida Bay, which threads through a maze of islets and is really almost as "outside" as the other only much shallower of course. Weather governs one's choice. I had hoped to be able to take one going and the other coming back, but the weather decreed I should take the "outside" both times. And at first it looked as though I would take neither, for small craft warnings were flying for two days. It was far too cold to sit about and sketch (my drawing board never came out of its rubber bag under the foredeck) or skin dive so I muffled up and scratched the beaches, what few are left accessible to the public, for shells, and did a little exploring by road and was instantly aware of a vastly different aspect of the Keys. From the water they still seem fairly wild and remote but the illusion is dispelled the moment one takes to the road. Back of the shore the bulldozer and dredger have taken over and development is everywhere. Marathon itself rustles with the flight of dollar bills and blinks with bright lights and the notion of a "desert" island here is just about as absurd as in Times Square. The docks are pure Gold Coast, Florida, sheltered, spacious and everything laid on. The Skylark rode out the warnings in a corner berth dwarfed by the flying bridged fishermen on either side.

When at last the warnings were lowered and I prepared to get under way again the skipper and crew of one of the fishermen with the best of intentions attacked my self-confidence. "To Key West," they cried, "In *that? Alone?*" And made it sound as though I planned the barrel trick over Niagara. They looked at my chart and the course I had laid for Key West. "*Not* going out there—you'll be out of sight of land!" They pressed a couple of flares on me and said they were going out on charter in the Key West direction and would keep an eye open—plainly they never expected me to make it. I had to get out to sea before my ego, poor timid little chap, stopped wobbling. The open sea, in a bland mood, was reassuring.

Habits are hard to break, the deeper the water and the farther offshore the more at ease I felt, and at one time when a really sloppy sea got up it was all I could do *not* to head out to sea. The slop turned out to be a temporary aberration only, a quarreling of currents off the Bahia Honda. The seven mile bridge, and the 50 mile passage to Key West was made in five ecstatic hours with the diminutive Skylark bowling along amidst a fleet of shrimpers before a quartering breeze. There was quite a swell for the size of the boat but she never gave me a moment's uneasiness and did not show any tendency to dive or yaw. The engine had completely won my confidence long before this and I paid it no more heed than I would the engine of a car. It was an extremely pleasant passage.

Key West is no sleepy hollow at the end of the line. It is one of the most active places for its size I have ever seen, and the kind of which it has been said that people brag of its growing and then complain that it has got too big. One has to look very hard now to find any of the old West Indian architecture. There is an immense amount of to-ing and fro-ing, afloat and ashore, even the waters of the harbor popple and swirl in a frenzy of activity. So I was lucky to get the last vacancy in the Hilton Haven Motel, which stands on a very shallow offshoot of the yacht harbor, a creek within a harbor within a harbor. The motel was comfortable, the busy management was obliging—they lent me a radio for weather reports and it was nice to have the boat sheltered and on the doorstep. There was no restau-

When a gale is carousing offshore, the sensible outboarder ties up, as above, and waits it out.



Key West reached, the runabout was tied up right outside the motel, ready for the trip back home.

rant in the vicinity but there was a Food Fair hard by that supplied sandwich material.

The only problem was getting gas. After considerable searching and questioning I found a small crumpled dock in a somewhat inaccessible corner of the yacht harbor attached to a gas station where the one harassed attendant was kept on the hop by an endless stream of cars and it took 45 minutes to put 12 gallons of gas aboard in my portable tanks.

The weather was unsettled and the early morning report was discouraging with an offering of a nor'wester later in the day. I decided to take the "outside" route again as being in the lee if the wind came up early, but in fact it was the best day of the whole trip. A splendid sparkling day, clear, crisp and blue with only the lightest breeze, the kind of day that makes you feel inspired and Olympian, and the little boat joyously scampered over the water light as a skipping stone. I went in at Marathon but only for gas and continued on "inside" until it was nearly dusk and time to think about somewhere for the night.

By now the lovely day had gone, it was cold again and the promised nor'wester began to make itself felt. The channel was a long way from the shore and the low narrow keys at this point looked like a pencil line on the horizon. On my borrowed chart was a penciled notation "motel and dock" and a white dot in the distance seemed as though it might be it. But the motel turned out to be in the process of building and the dock in the process of decay. Cold grey waves slapped against the dilapidated pilings and made a dismal scene in the failing light. No matter how much one may feel the call of the wild there are times when one is truly grateful for the encroachment of civilization, and I tell you, the pink motel that turned up a few miles further along the shore was a most welcome sight. There was plenty of dock space and as I turned in a man strolled down the jetty. "Lost?" he asked taking my line. Half paralyzed with cold, I said, "No," sharply, "Looking for a place to stop the night." He looked puzzled at the sight of a lone female at large in a small boat (don't women *ever* do anything by themselves in America?) "Where are you from?" "Key West." Key West was about 70 miles away, but just as women are never alone, so people never go places apparently in small boats. Bill Ellis of Layton's Park, Long Key, was as excited as if I had come in non-stop from Venezuela. He wrested the boat from my grasp and chivvied me up to the house to thaw out and meet his wife, Irene, who made warm welcome for this chilled visitor with coffee and supper.

I was lucky picking stopovers out of the blue like this. Layton's Park was another good one, good for the traveler by road, good for the small boat cruiser and good for fishermen, for Bill Ellis has a tackle shop and boats available, and the motel rooms are comfortable and reasonable.

When I know of a good thing I am apt to order a repeat, so I stopped by at the Alley's at Tavernier again and took time off to do a little bird watching, having an intense curiosity about other people's passions. Nearby islets are sanctuaries and were thick with bird life, one pink with roseate spoonbills going about their daily affairs remarkably impervious to being watched, and I began to understand a little how this bird watching activity fascinates its adherents.

From Tavernier there was a relentless headwind to Miami. I skipped the direct route through the Featherbed Bank and followed the mainland coast in very shallow water where long weed billowed like mermaid's hair. I expected it to wrap around the propeller and foul things up but apart from an MGM lion-type snarl at times the motor was not troubled. Clumps of sargasso were more of a nuisance, but easily shaken off by going into reverse when the lion roared. I spent two days in Miami exploring the keys in Biscayne Bay in the sort of weather that should have favored the whole trip, then sauntered back along the Intracoastal Waterways to Fort Lauderdale, very satisfied with my experiment in miniature cruising.

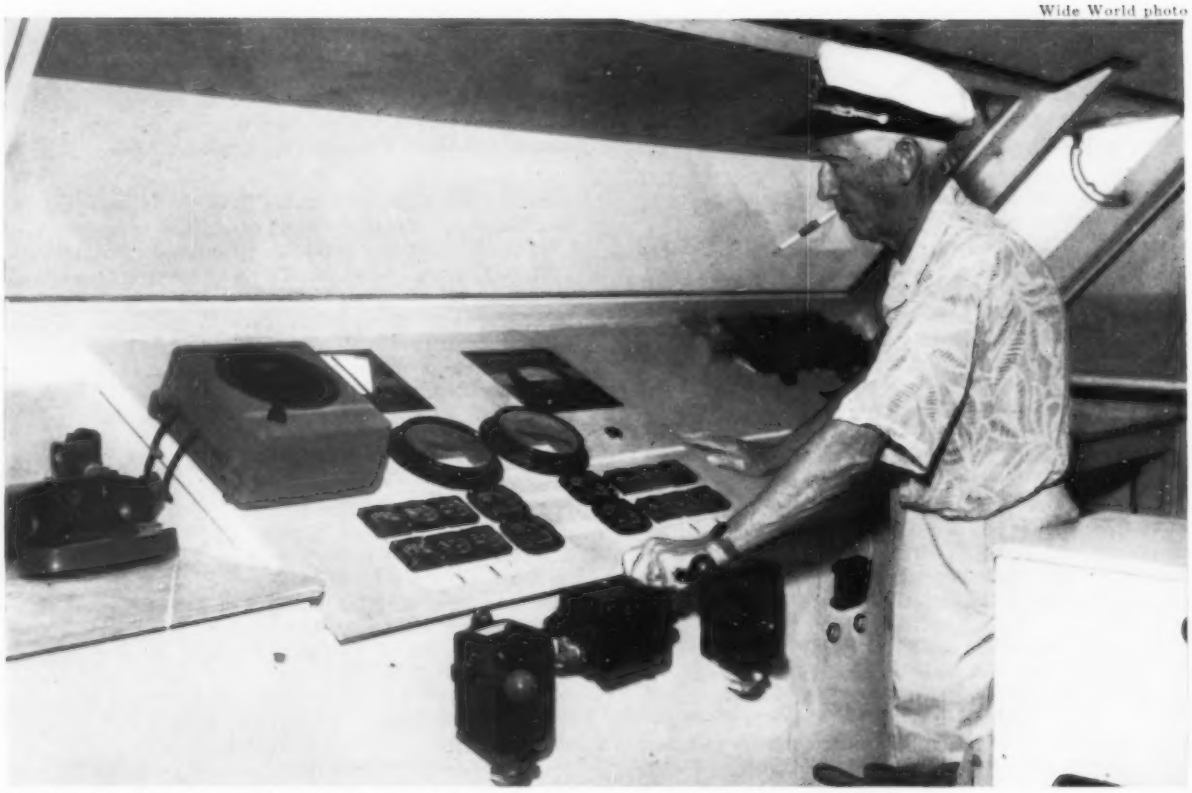
I had covered 350 miles in a ten day cruise and it had been a real vacation in spite of the weather—I did not need to have another immediately to recover from it! I had started and returned on schedule and there had been the minimum of preparation. An outboard cruise like this could be almost as impulsive as a tour by car. Driving the boat was fun—all the fun of a sportscar and none of the traffic—and it was a very comfortable non-tiring way of getting about. Another pleasing feature that lessened fatigue was the quietness of the motor. It was quieter than most inboards I've known and of course there was no drumming which I hate, and if there had been anyone to talk to we could have conversed in normal voices under way. Gas consumption averaged about a gallon and a half per hour at cruising speed, which varied according to conditions but averaged 8 knots over the trip. Boat equipment was absolutely standard, there was nothing except perhaps the compass one would not expect to find aboard a boat of this type. The electric start was a joy. It never failed to start the motor first turn of the switch. "Just like a demonstration model," someone said enviously watching me take off one morning.

The only addition I will make next time will be a top for the boat, for most certainly there will be a next time and I count on the sun being along. Frankly this trip was a revelation to me, I had no idea that cruising could be so simple—and such fun. —Ann Davison

boatman of the month

# GAR WOOD

Wide World photo



At the controls as always, Gar heads out with his experimental Venturi in 1953, one of the forerunners of today's increasingly popular powered-catamaran designs. Though craft eventually broke up in rough seas, she did much to prove sea qualities and feasibility of the twin-hull type.

**By Frank Kilburn Coffee**

GARFIELD ARTHUR WOOD dominated his sport like no other champion. At 78, the Grand Old Man of Power Boating is possibly more famous than either of the U. S. presidents for whom he is named. In a trail-blazing, record-smashing career that spanned more than forty active years, he participated in raising the record of man-on-water from fifteen to nearly 125 mph. Racing before crowds that numbered as high as 600,000 spectators, he captured the much-coveted Harmsworth International Challenge Trophy (the America's Cup of motor-boat racing) nine times in succession, dominated Gold Cup racing to the extent that the rules were changed in order to bar his Unlimited craft from further competition, and established world speed records that stood until long after his retirement.

Looking back, the most thrilling race of this small, wiry man, with the trademark shock of snow-white hair, was a struggle for which there was no trophy, no purse, no cheering crowds. This epic event in a most colorful career took place nearly seventy years ago, on Lake Osakis, in Minnesota. Young Gar, third eldest of a farm-family of thirteen, was "crewing" for his father, summertime skipper of the *Manitoba*, a wood-burning ferryboat that plied the 10-mile lake.

Bluff, big-hearted Walt Wood's only competition on the lake was the *Merry Mann*, owned and operated by "Wes" Mann, who insisted, intemperately, that *his* ferryboat was faster than Wood's—and by gum, some day he was going to prove it!

One day old Wes caught the *Manitoba* in the middle of the lake and short of fuel. He had Cap'n Walt at his mercy.

"Why don't you row that old tub in," he jeered as he edged alongside. "I'm passin' you like you were goin' the other way!"

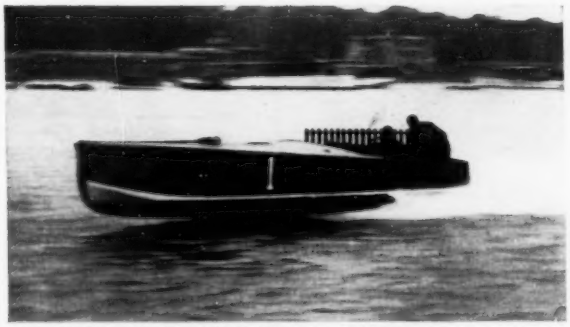
"Blast your hide!" roared Walt Wood. "Hey, you, Gar, give me a hand with this furniture. Bust her up and shove her into the firebox. We'll beat that old pirate if we have to tear up the deck!"

Father and son fed the fire with chairs and tables and, though old Wes pushed the *Merry Mann* for all she was worth, the Woods beat him going away. Gar was only a

**Known as the "Silver Fox" of high speed powerboat racing, Gar stands in first place as the man who has contributed more to engine development, and won more major events, than any other competitor in the sport**

Rosenfeld photos

Humor was always a Gar Wood trait, and he showed up in evening dress for himself and good-luck teddy bears at 1924 event.



First of the fabulous Miss Americas, she was unveiled in England to take the Harmsworth trophy in 1920 with her 80 mph speeds.

More horsepower was Gar Wood's recipe for more speed, and Miss Americas VII and VIII, above, could approach 100 mph in 1928.

youngster then, but as he has recalled many times since: "I still feel the thrill of winning that race. Right then I resolved that some day I was going to build and race boats of my own."

Gar Wood took his first big step at age thirteen, when he began operating a 16 foot power launch for a government harbor-survey team at Duluth. He *was* a little young, but he was a born tinkerer, and nobody else could get the boat's newfangled gasoline motor—the first internal-combustion engine ever seen at Duluth—to cough, let alone run. After that, Gar never had a moment's doubt as to what he wanted to do.

Scarcely out of his teens, he built a boat for Dick Shell of Duluth. Powered with a 10-hp motor, the boat skipped along at 15 mph, at that time faster than any other boat on the water—*anywhere!*

Gar had a genius for getting more out of a boat's motor than the manufacturer put into it. Before the days of carburetion, he would open up the air valves and squirt in gasoline from an oilcan to boost the power. He also discovered advanced spark. In 1910, with a borrowed boat and a "souped-up" motor, the water-borne wizard set his first world's record, during the Mississippi Valley Power Boat Association Regatta at Dubuque, Iowa, covering ten miles at a "phenomenal" 30-mph average.

Few people are aware that Gar Wood's great personal fortune has nothing to do with motors or motor-boating. It stems, rather, from a truck-dumping device.

In 1912, at St. Paul, Gar watched two men straining at a hand-winch to dump a load of coal and conceived the idea for the hydraulic hoist. He was careful not to accept assistance that might pry the invention from his hands, but made hoists one at a time, until, by 1914, he was able to establish a modern factory in Detroit.

With his first real profits, Gar bought the broken hulk of *Miss Detroit*, 1915 Gold Cup winner. Chris Smith, of Algonac, Michigan, wrapped a new hull around the 250-hp Sterling engine and the boat became *Miss Detroit II*. With owner Wood at the wheel, the single-step hydro captured both the Gold Cup and the One-Mile Championship (67.72 mph) in 1917. The elated racer promptly bought out Chris

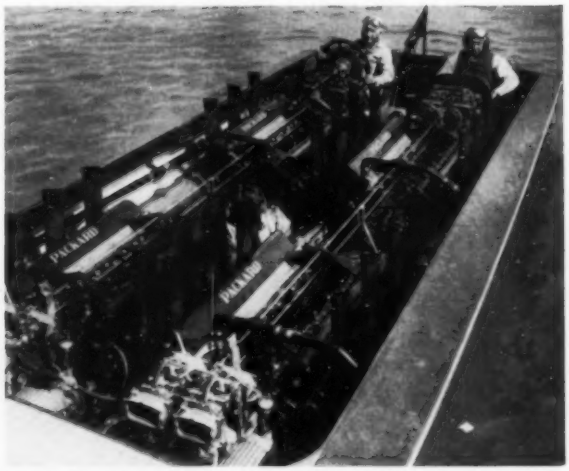
BOATMAN continued on next page

## Great boats plus huge horsepower were Gar Wood's secret for success

BOATMAN continued

Rosenfeld photos

**Wood's Miss America X, last of his great competition craft, was the 38-foot result of many years and $2-million in experiments.**



**Inside Miss America X, Gar and Orlin Johnson installed four supercharged 12-cylinder Packard engines of 6400 hp that delivered 124.915 mph.**

Smith's boatworks, and, for the next six years, Chris and his sons (who were later to establish themselves as Chris-Craft) built speedboats under Gar Wood's direction.

Gar was never one for models or test tanks. He developed his boats one from the other. Where more speed was the problem, more power was his answer. When he proposed putting the concentrated fury of a 12-cylinder airplane motor into *Miss Detroit III*, engineers told him it positively wouldn't work. "It would be like putting a torpedo into a peanut," they warned. But Gar, who took Edison's "Believe nothing that you hear and only half of what you see" as his motto, thought otherwise. He spent an entire winter working on a 450-hp Curtis motor, increasing the r.p.m.s and reducing the weight. The rebuilt motor worked like a charm, and with it Gar roared to victory after victory. In a few years, every high-powered competition craft in the U. S. and Europe boasted aircraft engines.

When Gar Wood went to Cowes, England, in 1920, determined to capture the Harmsworth International Trophy in a do-or-die first try, he took with him a new "rough-water" hydro, the 38 foot *Miss Detroit V*, and a second boat, which he kept under cover. The British had rather expected that the American challenger would bring a heavy-seas boat with him, and Gar wasn't a bit surprised when the defender, who had that privilege, chose to race on a day when the sea was mill-pond smooth. The "Silver Fox" of Algonac simply "unwrapped" the first of his great *Miss Americas*.

*Miss America I, a* "smooth-water" hydro capable of 80 mph, was the first twin-screw speedboat. A 26-footer with the lines of a runabout, she was powered by twin Liberty "12s", the most vaunted of WWI aircraft engines. The boat hadn't been tested since leaving Algonac, and there was the danger that something might be amiss, but she never faltered. With Gar at the wheel and Jay Smith at the throttles, she shot over the starting line and ran away from the four other boats in the contest.

After the Harmsworth victory, Gar hurried home to defend the Gold Cup. The daredevil sportsman drove *Miss America I* around the Detroit River course at a "fantastic" 70-mph average for the three heats, *a record that stood for 26 years!*

In 1921, the British were confident they had a Harmsworth entry that could beat *Miss America*, but Gar dug into his pocket and came up with *Miss America II*. He kept that up for years, building his boats just enough faster than each new competitor to keep his crown seated firmly on his head.

The speedboat king's earnest desire to popularize motorboating led to a thrilling race against the Atlantic Coast Line's crack Havana Special, from Miami to New York. Gar's elapsed time for the hazardous, 1250-mile dash in *Gar Jr. II*, a rugged, 50 foot cruiser powered by two Liberty "12s", was 29 minutes better than the train's.

With the speedy *Baby Gar IV*, the peerless pilot challenged the swift Twentieth Century Limited to a race down the Hudson, from Albany to New York City. This was another thriller. *Baby Gar IV* beat the best time the New York Central's flier ever made by seven minutes!

Asked what it was like to ride the fast boat down the bumpy Hudson, master mechanic Orlin Johnson, Gar's inseparable riding companion from 1920 on, had a pretty graphic answer: "Take your car to the nearest railroad track, remove the springs and tires, and run it over the crossties at 50 mph. That's what it feels like."

Buoyant sprites, Gar and his mechanic showed up in full evening dress—white gloves, top hats and all—for the Fisher-Allison Trophy Race, at Buffalo, in 1924. "Why, this is a gentlemen's race," explained Gar, with a grin, in answer to the curious smiles and the sallies that greeted the crew of *Baby Gar IV*. "To prove that this is a 'gentleman's runabout,' we're driving it like gentlemen."

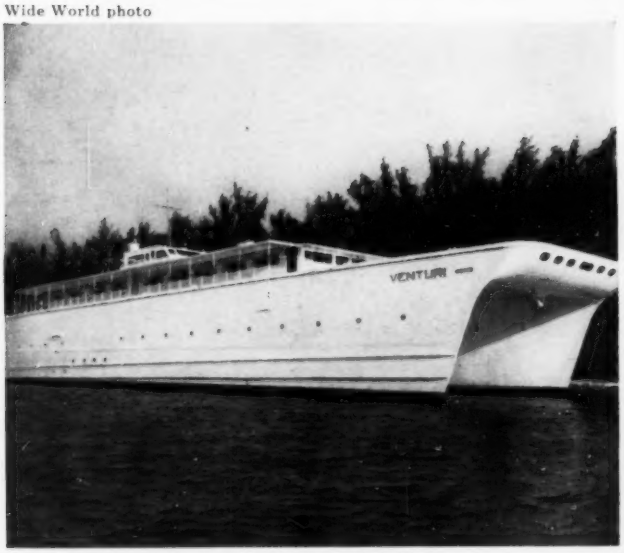
Vibration was the only thing that ever bothered Gar. His phobia was that someday, while rocketing over the water, he'd die suddenly. He believed there was a vibration cycle that could kill a man, but he didn't know just where it was. There was a day, however, when he thought he'd found it.

Gar's great ambition was to be the first man to ride over the water at 100 mph. On August 12, 1928, on the St. Clair River at Algonac, he achieved that speed in the newly launched *Miss America VI*, and nearly died doing so.

*Miss America VI* was a mahogany thunderbolt. Gar had doubled the power of his previous boats by installing two, 100-hp aircraft engines. They proved too much for the light hull. The speedboat flew to pieces traveling at a speed Gar estimated to be well over 100 mph—faster than any-

Gar Wood, left, and Orlin Johnson, mechanic and driving companion, set a record of breaking records. Gar holds bears salvaged by divers from sunken craft.

Wide World photo




Even after he retired from racing in his fifties, Gar continued his experiments. He finally drove Venturi, above, to destruction to test principles.

one had ever gone on water before. It was as though the boat had hit a stone wall.

Gar, still holding to the wheel, was dragged nearly to the 60 foot bottom of the river, but escaped serious injury. It was the seventeenth time he had been hurled into the water at or near that speed! Orlin Johnson was pulled from the water unconscious, his jaw and three ribs broken, his neck cut almost from ear to ear. When he regained consciousness, he quipped weakly, "Guess we'll have to build a new boat."

*Miss America VI*'s powerful—and costly—Packard engines, along with two toy teddy bear mascots that had ridden with Gar in every race since 1910, were salvaged from six feet of mud at the bottom of the river, after a four-day search by divers.

Exactly thirteen days after the near-fatal accident, a brand new hull had been built, and Gar and Orlin, his jaw in a cast and his body so taped that he had to be lifted into the cockpit, drove *Miss America VII* on schedule, in defense of the Harmsworth Trophy. The Seventh wasn't as fast as the Sixth, but following an easy Harmsworth victory, Gar lifted the official one-mile mark to 92.862 mph.

The real drama of international motor-boat racing began in the summer of 1930 when Major Sir Henry Segrave pushed *Miss England II* over the surface of Lake Windermere at 98.76 mph. The $200,000 boat belonged to oil-rich Lord Wakefield, Britain's patron of speed; the boat's engines, a pair of 2000-hp Rolls-Royce Schneider Cup prototypes (that had cost $5,000,000 to develop), belonged to the British Air Ministry. Minutes after setting a brilliant new record for Gar Wood to shoot at, the boat struck a water-logged tree branch, cartwheeled, and hurled Segrave to his death.

In March 1931, Gar Wood took *Miss America IX* to the net-raked waters of Indian Creek, a man-made waterway adjacent to his winter home at Miami Beach. Rocketing through the eye of a needle (the small center arch of a concrete bridge that spanned the approach to the measured mile), at 102.256 mph, he regained the title that, until the summer of 1930, had been his for more than a decade.

Two weeks later, in the repaired and heavily subsidized *Miss England II*, dapper Kaye Don, who had succeeded the late Major Segrave as Britain's foremost exponent of speed on water, slammed up and down Argentina's Rio Paranà at 103.49 mph.

Gar Wood, playing almost a lone hand against the staggering resources of the British Empire, was in a real fight—and he loved it!

The crown changed hands half a dozen times, and the Harmsworth contests of 1931 and 1932, which pitted Kaye Don against Gar Wood, drew crowds reputed to be the biggest ever to witness any sporting event anywhere. Don, who had won the first heat, might have taken the trophy back to England in 1931, but for the fact that, in the second heat, *Miss England II* spilled him into the Detroit River and sank, after a false start in which he had followed Wood across the line seconds ahead of the gun.

*Miss America X*, Gar Wood's last competition craft, was the most awesome speed-boat ever built. A veritable juggernaut of power, with four supercharged 12-cylinder Packard engines delivering 6400 hp, she was the 38 foot culmination of two million dollars worth of research that had gone into the *Miss America* line. After she streaked through early morning mists on the St. Clair River at a blistering 124.915 mph, there wasn't a challenger in the world willing to dispute Gar Wood's supremacy.

Gar Wood was well into his fifties when he retired from the racing wars, but he has never lost his enthusiasm for speedboating. For years after his retirement, he delighted in testing the production models turned out by his boat plants, actually just a small part of the Gar Wood operation. When, during WWII, he was recognized as "the Father of the PTs," the Navy's scrappy little warriors—the offspring of the rugged *Gar Jr. II* and the powerful *Miss America X*—he felt well compensated for his nearly forty years as "the nation's research laboratory" for the power-boat industry.

Speeds much greater than 125 mph are common in this day of jet-powered three-pointers, and Donald Campbell's recent 248.62 mph on glassy Lake Coniston, in the sleek *Bluebird*, doubled Gar Wood's best mark. But no man did more to popularize power-boating than this boatman who stands with Dempsey, Ruth, Jones, and Tilden as one of the greats of Sport's Golden Age. As was acknowledged only a few years ago by the American Power Boat Association, no man ever did more to earn his niche in motor boating's Hall of Fame. —FRANK K. COFFEE

# LAKE OF THE OZARKS

## When Bagnell Dam was built it provided a boating bonus of meandering 137-mile channel and 14,000 miles of shoreline to make this new Midwest resort area

By Frank Farmer

THE THINNEST of winds whipped across the Lake of the Ozarks in south-central Missouri a day in early spring as Phil Hildebrandt supervised repair work at his Malibu Beach Boat Company. Each lift of the wind-tossed water piled little shards of ice higher on the beach.

From out on the lake twin air horns insistently blasted. Startled, Hildebrandt dropped a tool. "Somebody's on the lake this kind of weather?" he muttered.

Glancing out the window which permits a panoramic view of vaulting hills and blue water, Hildebrandt saw a houseboat battling toward his dock. Shaking his head, grinning, he said, "These Missouri boaters. Nothing keeps them off the water. It beats all how these people lived virtually landlocked for many years, then suddenly got sea legs."

At the dock Hildebrandt met Mr. and Mrs. William F. Knox and son Don, from Jefferson City, who were moving their houseboat from the Niangua Arm of the lake to a point near Bagnell Dam. The Knox family emerged from their boat, snug as a nest of mink, gassed up, filled thermos bottles with hot coffee and, after thanking Hildebrandt for his service, breasted the waves for the remainder of their forty-mile voyage.

The Knox family is but one of thousands of Mid-West families who have succumbed to the lure of the Lake of the Ozarks, one of the largest man-made bodies of water in the United States. These thousands of families—plus the hordes of vacationing Americans with summertime fiddlefeet—have changed the area's agricultural economy to a marine economy. From a thinly populated, near-poverty stricken area, it has become a prosperous one spawning several whole new communities. Former farmers have boatdocks

Bagnell Dam backs up waters of the Osage River to form Lake of the Ozarks. Narrow, twisting character of the lake and its many offshoots can be seen in the aerial view above.

There's plenty of water for carefree speeding on Lake of the Ozarks. Trees and other subsurface obstructions were cleared away before lake was filled. Area was once landlocked farmland; now the shoreline is dotted with vacation bungalows, boat houses, launching ramps and boatyards. Land along shoreline is privately controlled, unlike federally-owned lakes where property must be leased.

Photos by Missie-Missouri Resources Div.

Day sailing and racing are both popular activities on the lake. Thousands of local boatmen and vacationers have changed lake from poor farming area to prosperous marine economy.

where henhouses once stood, a 35-foot cruiser and an expensive auto in place of the once familiar team and wagon. Several enterprising landowners, who screamed "ruin" when the lake waters inundated fertile bottomland, turned misfortune into fortune by building cabins and sups, and buying boats and motors to rent.

Since October 16, 1931, Osage River waters have poured through the penstocks of Bagnell Dam, constructed by Union Electric Company of St. Louis. In the manufacture of some 375 million kilowatts of electricity annually, the river, dam and lake combine to form an entirely practical function, one designed to provide comfort and efficiency for a half million homes.

But one must see the recreationai area formed by this combination to appreciate the satisfaction provided for millions of persons. As a private enterprise, the lake reputedly has many advantages over the federally owned lakes. Said one owner of a vacation bungalow, "Who wants to build a $20,000 home on leased federal land when you can buy a lot outright on the Lake of the Ozarks?"

With 137 miles of main channel, twisting from the village of Osceola in St. Clair County to the dam at Lake Ozark in Miller County, the Lake of the Ozarks forms an incredible shoreline of 14,000 miles, a surface area of 59,520 acres.

While not as vast in surface area as many other lakes in the nation, the Lake of the Ozarks challenges, for sheer interest and beauty, any that can be found, at least to outdoor minded persons from Missouri and many north-central states.

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OZARKS continued on next page

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OZARKS continued on next page

Public beach has swimming pool built out over lake as lake bed drops abruptly from shoreline here. Lake depth is up to 125 feet in some places.

Jack Rutledge's Arrowhead Yacht Club has this marine railway that can handle cruisers up to 45 feet, as well as covered slips for 20 to 40-foot craft.

Paddle-wheel propelled craft can be rented at the beach area of Lake Ozark State Park, located on both shores at southeastern end of Grand Glaize.

head Yacht Club, but the months of the year it is tied up are few indeed.

"A person could spend a lifetime cruising the Lake of the Ozarks," Rhoads said recently, "yet never become truly intimate with it. Four times a year—as the seasons change—this lake adopts a new personality. Fall and spring are, for us, the favorite times.

"It's an emotional experience to watch the individual hills disappear as the trees leaf out in spring, just as wonderful seeing them reappear following the flaming fall revue."

Thus, for the Rhoads, the Knox family, and many others, boating season may run from late March until late December. Mr. and Mrs. Rhoads even ate Christmas turkey on their cruiser last year.

Perhaps as much an attraction for the Lake of the Ozarks as its beauty is the safety factor. The skipper of a 45-foot yacht or pilot of a speedboat is safe as long as he doesn't try navigating on dry land. The lake is deep—125 feet where the Glaize Arm empties into the Osage Arm. Before it filled, Union Electric cleared all vegetation from the lake bed that would come within 30 feet of the surface. Thus the rankest beginner can safely navigate the lake, his greatest concern that of avoiding collision with other craft.

Even though the summertime traffic on the lake is heavy—one resort owner estimated ten thousand boats might be on the lake at one given time—almost six acres of navigable water still remain for each boat.

The scenery of this lake is diversified: there are areas of clear water, of brown water, sections which back up to low rolling hills and prairie, or are bounded by gaunt cliffs of magnificent beauty.

Resort operators in many vacation regions are given to listing fishing as their greatest attraction, perhaps are occasionally even tempted to prevaricate in order to draw patrons. Not so resort operators at the Lake of the Ozarks. They'll brashly admit they don't have the world's best fishing, that fishing as such has been neglected. They'll tell you just as swiftly, their business comes from boat fanciers—and thus the estimated 30,000 resort units in the area.

Still, there are fishermen by the hundreds who visit the lake and do not leave disappointed. The fish are there—it just may be hard to catch them in so vast an area.

How many docking facilities, how many boat wells available?

Anybody's guess, including yours, is accepted. However, there's no denying the outboard owners take the short end of the stick. "But that's partly their fault," said one dock owner. "They buy their boats, motors, supplies in their home city, and want us to furnish them service and launching ramps for the fun of it."

Yet an outboard owner has no trouble finding launching facilities. Chief of these is Lake Ozark State Park, state-owned 15,000 acres located in an area of gentle slope and gravel beach. Boat wells are available and the state park board has announced plans for further expansion.

The persons who only wish to ride, and not operate, boats, may buy passage on any of a half dozen excursion craft. Dick Churchill, operating his "Ozark Clipper" out of Link's Landing at Grand Glaize, last year booked 10,000 passengers. Though not necessarily good for Churchill's business, he admits the excursions made prospective customers for boats of their own out of a good percentage of his cargo.

Five large boat yards are located about the lake. They are Arrowhead Yacht Club, two miles south of Bagnell off U. S. Route 54; Malibu Beach Boat Company, on the Grand Glaize Arm and south of Route 54; Gatlin Boat Yard, near Gravois Mills at the northwest corner of the lake and off State Route 5; Page Boat Yard, near Gatlin; and Don's Boat and Motor Company, mouth of Linn Creek and off Route 5.

OZARKS continued on page 62

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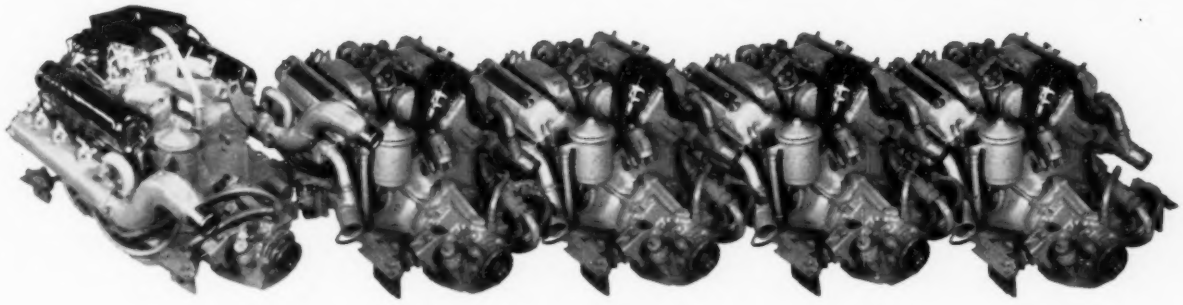

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**INTERCEPTOR**

**DEARBORN MARINE ENGINES, INC.**
Dept. M • 31465 Stephenson Highway
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**Boy Scout regatta is held on Grand Glaize in early spring near scout camp on opposite side of lake. Resort in foreground is one of hundreds in area.**

**Boating and resort operations are concentrated at the eastern end of the lake, which snakes its way from Bagnell Dam at right, to Warsaw, at left.**

## OZARKS continued

Touted as the best of these is Jack Rutledge's Arrowhead Yacht Club, though staunch patrons of each of the others will take issue. Rutledge has about 80 customers, stores two 45-foot cruisers. A native Kansan and machinist by trade, voluble Rutledge in 1946 purchased the old Gore Boat Yard, which had been in operation since the lake filled in 1931. With his energetic wife, "Pee-wee," he has consistently plowed back profits into the business. According to Springfield, Missouri, yacht owner, Dorsey Heer, Rutledge's facilities are "second to none I've ever seen. The retail value of boats in Rutledge's care is at least one million dollars, which should indicate his customers' faith. About a dozen of the craft are in the yacht class."

"We put $20,000 back into the business last year," Rutledge declared recently, "and are going to repeat this year. By mid-summer we'll have about 20 new covered boat wells for 20 to 40-foot craft."

Also bought out of profits are six cruisers which Rutledge rents by the day or week, on a sliding scale according to time of week, time of season. Rates are from $25 to $75 a day and, he says, "provide the finest bargain on the lake."

Risky business? "Not on Lake of the Ozarks," he says. "Shallow lakes might be bad. We've developed a 30-minute training program which can teach anyone with learning ability to handle a boat safely. We don't try to make skilled boatsmen, but to combine desire with horsesense."

Peak rental period for Rutledge is June, from then until Labor Day is a busy time. During this period, Rutledge and Pee-wee seldom hit the bunk for more than four hours at a stretch, being busy overseeing repairs, laying in supplies, supervising employes. It isn't unusual for Rutledge to don diver's rigging and crawl around the bottom of the lake looking for lost tools or valuables, perhaps taking the firm's "trouble tug" out to tow in a cripple, or to refuel a stranded craft. He launches big boats with a marine railway.

Malibu Beach Boat Company is operated by Phil Hildebrandt in conjunction with his father, Phil, Sr., St. Louis. They also have a boat company in St. Louis. Hildebrandt has a public boat launching ramp, a concrete strip running 150 feet out into the cove. Low or high water can't keep you from launching a boat here. Also at Hildebrandt's is a marine railway, used for launching of larger boats. "We do everything to a boat from prop repair to wood finishing," he said. "In fact, there is no boat service we are not prepared to do. We have dock facilities for 50 boats, including outboards, houseboats and cruisers."

Last year Hildebrandt did a brisk brokerage business. He sold 35 Century inboards, 18 Chris-Craft.

Gatlin Boat Yard is operated by George Purvis. "We have three types of customers," he says. "The folks who leave boats the year around and live on them when they are at the lake; friends and neighbors, either fulltime or summer residents, who drop in with their boat problems or just to visit; the tourist who comes to the lake maybe once a year, maybe three times, maybe 30 times. His problem is usually pretty pressing and needs to be settled quickly."

Continues Purvis, "We've been a part of the boating industry 21 years. In the beginning there were two houseboats, one inboard runabout, a handful of outboards. Now we store 125 boats ranging from 35-foot cruisers to outboards. Our cruiser shed for summer storage has lights and water. Our service department is complete and we do everything that needs to be done to a boat."

As with the above three, Page's and Don's are equipped for service and storage, in lesser degrees, but help round out the marine business on the Lake of the Ozarks. All five carry complete lists of marine equipment.

There are four "gateway" towns to the Lake of the Ozarks; Warsaw on the west, on U. S. Route 65; Versailles on the north, on State Route 52; Eldon on the northeast, on U. S. 54, and state routes 52 and 87; and Camdenton on the south on State Routes 5 and 54.

The heaviest concentration of activity on the lake might be included in a triangle with Camdenton on the south, Versailles and Eldon on the northern points. The highways are among the nation's best and a huge expenditure by the state highway department assures that they will become better. Even the numberless lake roads are easy on expensive autos, being maintained by resort owners and county court appropriations.

You want to fly to the Lake of the Ozarks? Come ahead. You'll find airports at Osage Beach and Camdenton, "busy as hell," as Jack Rutledge says. The airport runways are paved, 3000-foot strips; both are attended and 80-octane gas is available. No radio facilities are yet on hand, but Rutledge says "you can home ADF at the Osage Beach KRMS tower, 1160 on the dial."

What the future of Lake of the Ozarks boating?

Let Rutledge tell you: "Humans being what we are, we occasionally feel compelled to get away from each other. So how could boating stay anywhere but on top?"

—FRANK FARMER

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*BIG LOAD outboarding*

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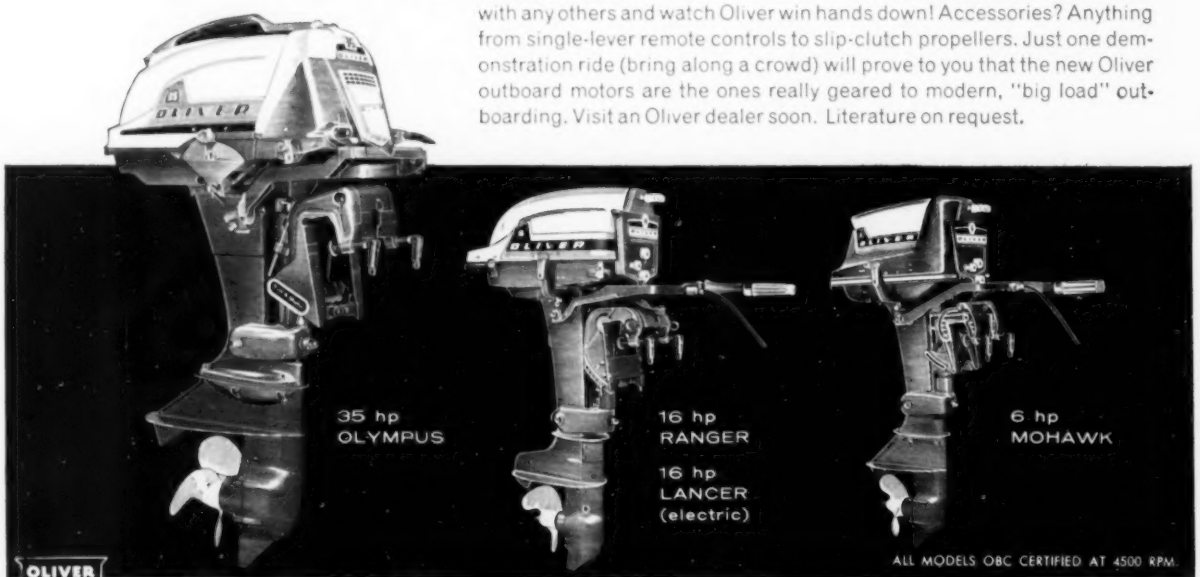



**OLIVER OUTBOARD MOTORS** *124 S. McCamly Street, Battle Creek, Michigan*
Division of The Oliver Corporation

Clearwater's roomy after cockpit makes her an excellent family boat. Auxiliary benches can be arranged in several different ways to provide sleeping or lounging space.

POPULAR BOATING tests THE

# STAMAS CLEARWATER

TESTED BY POPULAR BOATING

**By Hank Wieand Bowman**

THE BOAT chosen for the PB test this month is the 19-foot Stamas Clearwater, built by Stamas Boats of Tarpon Springs, Fla. Underway checkouts were conducted on the Inland Waterway and on Lake Worth, Fla., using the launching and docking facilities of the McCulloch Corp. Scott outboard test center at Lake Park.

Although rated as a 19-footer by the manufacturer, the Clearwater model measures 18′8″ down the centerline from stem to transom; 20′4″ around the gunwhale. She has an extreme beam of 95½″. Weight is approximately 1150 pounds with standard equipment, including hardware, windshield, V-bunks, helmsman and companion seats, bumper moldings and steering. Price, with the above equipment, lists at $1798.

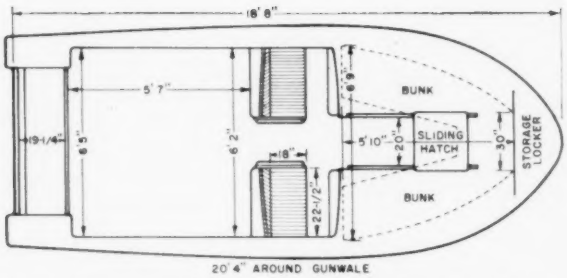
Our test boat weighed approximately 1350 pounds as equipped with the following optional items: folding navy boat top ($63.50), seat cushions ($29.95), under foredeck bunk cushions ($70), two removable cockpit seats ($21.50 each), and cushions for these ($11 apiece). Other optional equipment available includes side curtains ($35.25), stern curtains ($45.75) and a marine toilet ($82.95). Prices include installation costs.

In *safety*, the Stamas came out with an excellent score. Several years ago we looked over a number of Stamas models and were not impressed. We felt they lacked sufficient structural strength members, and did not appear to have the beef to stand up under a beating. This has been changed, as will be indicated in the discussion of durability.

Vision through the Clearwater's windshield from the helmsman's seat, sitting or standing, is excellent. The shield is 18½″ high measured perpendicularly above the dash coaming. It is wood-framed, ruggedly constructed with 3/16″ Plexiglas on the port and starboard panels; ⅜″ Plexiglas is used for the hinged walk-through section, which is supported by heavy, easily adjusted chrome-over-brass hardware.

One of the features that seems very desirable and adds greatly to the boat's safety is this walk-through windshield

Walk-through windshield and sliding foredeck hatch provide safe and easy anchor and mooring line handling, as demonstrated by test author Bowman.




Broad beam of nearly 8 feet makes this Stamas model exceptionally stable and allows it to carry fairly large loads for a boat of its size. More storage could be added to raise the boat's styling rating.

POPULAR BOATING

| RATING FACTORS BOX SCORE | Excellent | Above Average | Average | Below Average | Poor |
|---|---|---|---|---|---|
| Safety | ✓ | | | | |
| Comfort | ✓ | | | | |
| Adaptability | ✓ | | | | |
| Durability | | ✓ | | | |
| Styling | | | ✓ | | |
| Performance | | ✓ | | | |

## She's safe, fast, offers an air-cushion ride

## and provides real variety of accommodations

and the sliding forehatch. This combination offers access to the foredeck for line handling or anchoring without the need to crawl around the sides of the boat, climb over the windshield or, in rough weather, to crouch on a slick, heaving foredeck.

This, coupled with two anchor and line stowage locations, makes anchoring, mooring and getting underway a cinch with the Clearwater. Ground tackle can be stowed forward of the V-bunks, or in the bilge under a removable center bunk panel.

Since the boat has an excellent family-type hull, we carefully checked the safety of the after cockpit where children would be likely to ride. Flooring here, as well as in the forward cockpit, is flush-decked and free of obstructions. Distance from floor to sheer cap rail is 30", deep enough so that no child will tumble overboard, yet not so high as to cut off a youngster's vision. Control and steering cables are run out of sight under the sheer rails. The Scott 60 on our test boat could be tilted fully to clear the front of the sealed motor well with plenty of room to spare so there need be no fear of crushed fingers.

Hasty rigging of the motor eliminated one of the exceptionally desirable features of this boat; one that concerns safety but is also part of styling, adaptability and comfort. The electrical connection box with wiring harness linking remote starting, battery and motor should have been mounted high up on the forward face of the motor well. Unfortunately it was mounted low and prevented opening the hinged floor panel at the rear of the Stamas. This hinged trap is designed for gas tank stowage, and the area between the bilge and the floor is ample to take four six-gallon tanks, plus a storage battery. Use of this area would offer a rear deck free of five 40-pound containers, which in rough going could bounce around in the cockpit.

The boat is fitted with two drain plugs, which refreshingly enough are fairly easy to reach.

Small items of detail finish further added to the Stamas safety rating. The forward hatch, for example, slides

TEST continued on next page

With side and rear curtains, Clearwater offers privacy and ample camp-out space for three to five persons. Note roomy motor well that allows plenty of clearance when even large outboard is tilted up.

## 'In rough going she took no spray into her cockpit'

smoothly on flat aluminum plate guide rails. Corners and edges of the metal rails are rounded and smooth: no snagged clothing from these. Under the foredeck protruding bolt-ends of deck hardware are neatly capped with acorn nuts so no jagged bolt-ends or sharp-sided nuts can cause injuries.

We gave the Clearwater an excellent rating for *comfort*. She offers all of the expected features to be found in any comparable sized outboard: roominess, an uncluttered layout, plus well thought-out convertible features. The windshield height is such that with the navy top up or folded forward, vision is unimpaired. While some boats with large wraparound windshields can become almost stiflingly hot, the center-hinged windshield provides through draft on the Clearwater.

The under-foredeck bunk area would appear at first to be somewhat short. It is only 5'10" long. However, measuring athwartships, there's 6'7" of fully-padded bunk. Clearance above bunk cushions ranges from 17" to 19". Two Plexiglas parts near the bow admit enough light so that, combined with the open aft end of the bunk section, the area is well ventilated and cheerful.

The two accessory cockpit seats can be arranged in a variety of ways: end to end athwartships to form an aft seat; end to end along one side to provide a 6'2"-long single bunk; or in a position behind either forward seat, leaving the after half of the cockpit open.

In rough going, the Stamas Clearwater took no blue water or spray onto her foredeck or into the after cockpit. She's as dry as most skiffs of equal length.

The Stamas earned her third excellent rating for *adaptability*. Her designers made exceptionally full use of her entire length and breadth. To a large extent styling has been kept from intruding on utility. As a fishing boat the Stamas offers a rear cockpit minimum area of 6'2" by 5'7" of uncluttered flush desk space, and with the sliding forehatch offers a strategic fish-spotting location at the bow.

Her broad beam gives the Clearwater a heavy gross load carrying capacity that does not materially affect her overall speed. She is notably untender to weight shifts, which makes her desirable as a fishing platform, and for photography. This stability naturally adds to passenger comfort. She can pull water skiers, as she is exceptionally fast for her size.

Equipped as discussed for the test, three persons could camp and sleep aboard her without cramping, and four to eight persons could go out for a full day's cruise without feeling crowded.

No 19-foot outboard is intended for rough ocean going or operation during a storm on a large exposed inland waterway. However the Stamas, with her 21" motor cut-out height and full transom well with high freeboard, could take a lot of heavy going if she was caught away from shelter in an emergency. She isn't the sort of boat constantly under threat of being swallowed by her own wake.

*Durability* gained her an above-average score. She is ruggedly built to be able to take a high speed pounding in choppy water for hours at a time without popping her seams. This is due to an exceptionally sturdy, well-stressed bottom. Much of the Clearwater is double-skinned. Her outer bottom planking and side planking is 3/8" mahogany plywood. Added to this is a 3/8" fir marine ply inner skin which gives her a double thickness plywood bottom of 3/4". The inner skin runs from 4" on either side of the 2" by 3 1/2" solid mahogany keel out to the chines—and from the transom forward to beyond her entry into the water. Chines and the six fore-and-aft stringers are of solid mahogany. Her transom is 1 5/8" marine plywood plus a 3/8" motor mounting pad, and it gains added tie-in strength with the sheer caps, which are approximately 10" wide.

Deck hardware is secured by bolts; the loading and towing eye is bolted through the stem and padded. All exposed wood has a heavily varnished finish, except under the sheer capping, which is treated with a wood sealer.

Only two non-durable features were noted. The companion seat bottom broke away during our testing. This and the helmsman's seat are constructed with leg supports in only one corner, glued and screwed at two butting surfaces. We feel that construction is inadequate here, and that such breakage need not occur.

The two tail fins, which will be treated further under our styling discussion, are exposed in such a manner that in docking they could be damaged or knocked off. The foredeck, which is not subject to much stress, is still heavily

TEST continued on page 68

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Lightweight aluminum adds to the speed and performance advantage gained by lapstrake. Starcraft aluminum is heavy-gauge, which means added strength and resistance to punctures. Maintenance worries are virtually eliminated and Starcraft offers a 15 year warranty against punctures and popped rivets.

Combine Starcraft's famous construction features with aluminum lapstrake and you have a seaworthy boat even for big, turbulent waters. Enjoy the pride of owning the finest. Go Starcraft! See your dealer and experience an exciting demonstration of the new Starcraft lapstrake aluminum boats!

STARCRAFT

**STARCRAFT BOAT COMPANY** • Department PB-4 • Goshen, Indiana

With 60 horsepower Scott, Clearwater was given hard-over turns with no fear of capsizing, but she did have a tendency to skid at high speeds.

braced. There are three athwartships deck frame members of mahogany, plus two ash longitudinals with an extremely heavy tapered mahogany brace at the after end. The foredeck hatch is so designed that it not only slides easily, but should continue to do so for the life of the boat.

Aside from the routine maintenance required of any wood boat, the construction of the Clearwater is not likely to cause anyone any problems.

For *styling* we rated the Clearwater average. Her lines are clean, and she rides the water with grace. She has a little sharper bow line than many of the Florida-built panel ply hulls. Her paint job and trim is appealing, and with top up or down she has a neat appearance, although the diamond-shaped ports under the foredeck make her seem to be winking in a sloe-eyed manner at other boats as she passes them by.

Styling features that knocked down her rating were largely convenience items that might easily be incorporated into the design by the buyer, plus the tail fins, which we feel detract from her looks and certainly do not add to her utilitarianism. These fins can be a nuisance to the fisherman trying to land a big one, and they preclude use of the after cockpit coaming for a place to hang a boarding ladder. They also make it impossible to use the coaming as a broad and comfortable seat for picknickers when the boat is laying to, or at anchor.

More storage could and should be provided on a boat of this size. Behind both helmsman and companion seats are two storage trays. As designed, these are useless underway, since only a narrow lip fences their rear and inboard edges. They also eliminate any back support for a rear cockpit passenger, and present a fairly narrow protruding surface that could bruise and dig into a passenger's back when the first few wakes are crossed.

The only other unsightly spot is particularly glaring in contrast to the overall high quality of craftsmanship shown elsewhere. This is the front panel of the self-draining motor well. It is constructed of fir plywood, stained so that the wild and rather unappealing grain plus a number of glued-in void plugs give an appearance of that this transom well was stuck in as an afterthought.

*Performance* of the Clearwater was rated above-average. Speed was checked with two passengers aboard as this is a boat more suitable for family and group use, and would seldom be used by one person alone. With a new, fairly stiff Scott 60 hp motor, we clocked 29 mph using a two-bladed bronze Michigan 11 x 16 propeller, and 28 mph with

TEST continued on page 70

it's fun to play the Ta-pat-co way!

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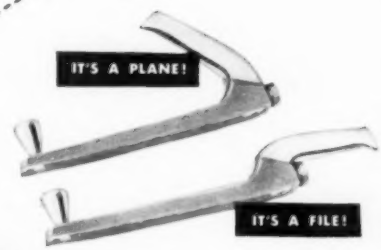


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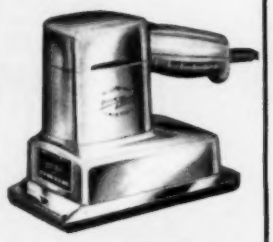

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Test author notes awkward and not overly useful shelf behind companion seat. Both front seats could be boxed with hinged tops to add storage.

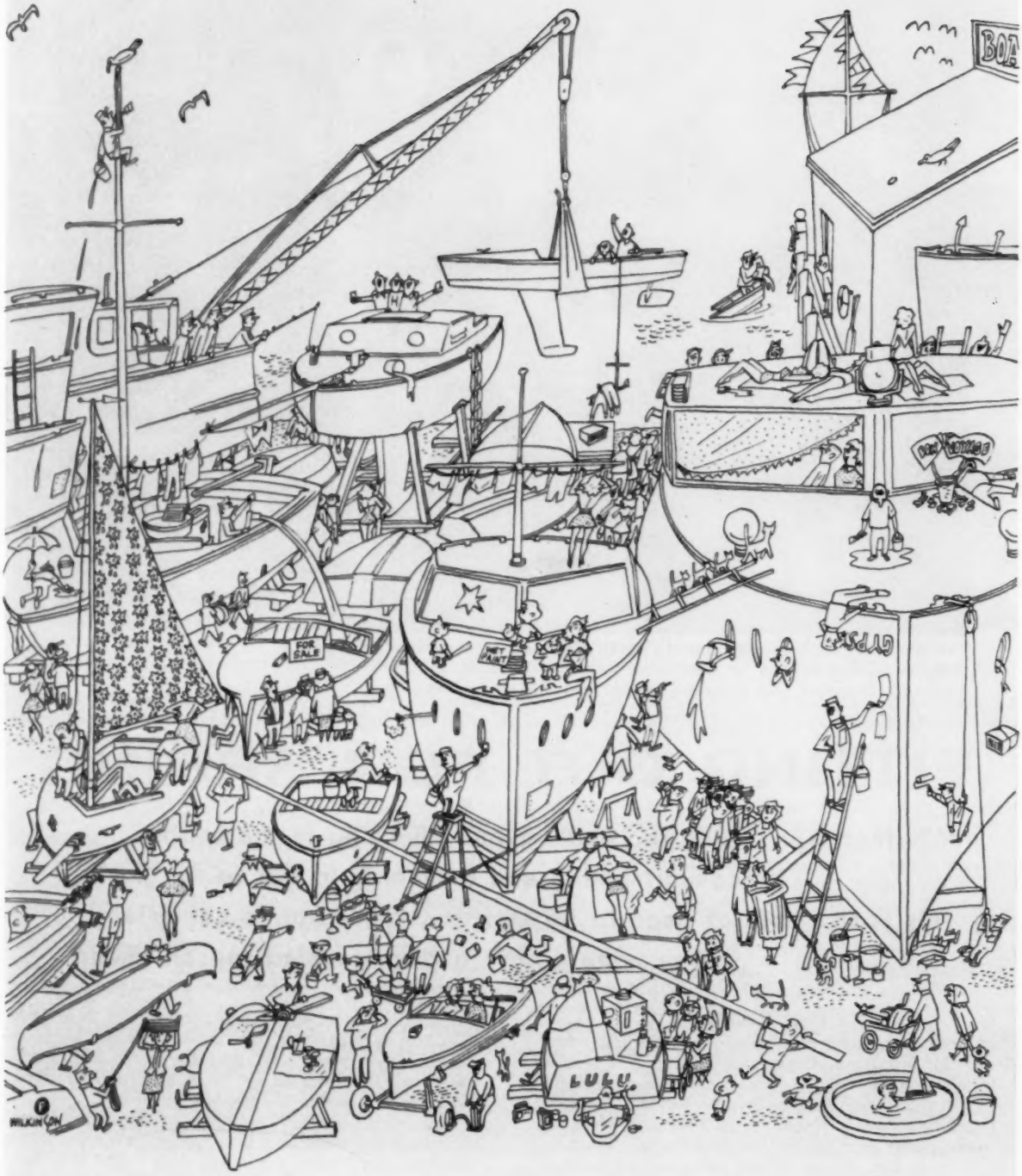
a four-bladed 11½ x 12 bronze Michigan propeller. Acceleration with the two-blade wheel was 0 to 18 mph in a little more than eight seconds; with the four-blade prop acceleration was 0 to 18 mph in 5.5 seconds. The boat moved onto full plane at 22 mph, but once there could be throttled back to 18 mph without dropping off plane. In both acceleration and top speed she compared favorably with many boats half the weight and considerably smaller.

We were left with the feeling that the bottom of the Stamas offers not only an exceptionally fast boat for its overall size, but also one that was noticeably not affected by additions of weight.

At no time was the boat set up for top speed, and even with the tightest turns we could put it into at full throttle, there was no cavitation. This boat, because of its wide beam and modest dead rise, turns very flat, but it also skids in cornering. While this would be no drawback in an uncongested area, it was one characteristic that reduced the boat's rating from an excellent. In a narrow and twisting creek in which we made a run, tide had dropped and we had to maintain full plane. Here the skidding was most noticeable. We found, after raking a couple of overhanging branches into the windshield after skidding too close to the bank, that you have to offer yourself a safety margin in the turns. —HANK WIEAND BOWMAN

Two auxiliary benches placed end to end along length of cockpit provide comfortable lounging space or bunk.

# SPRING FITTING OUT



The hull keeps out the water, and the hours spent now on insuring its perfect condition will be paid off by trouble-free sailing, more speed, and the knowledge that your boat is making the best possible appearance.

# FITTING OUT FOR SPRING

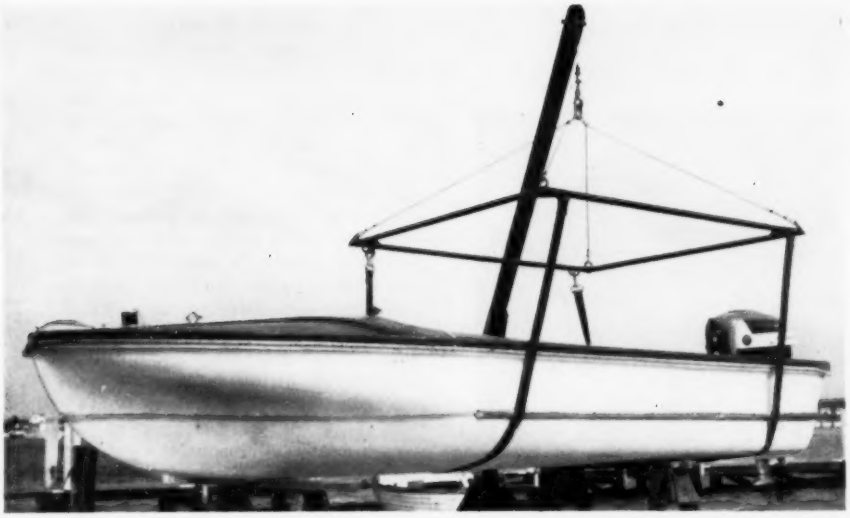
**Whether April calls for hauling and checking in the south, or commissioning and launching in the colder north, this is the time of year to be sure that your boat's condition will provide a safe and untroubled season ahead**

By Phil Reavis

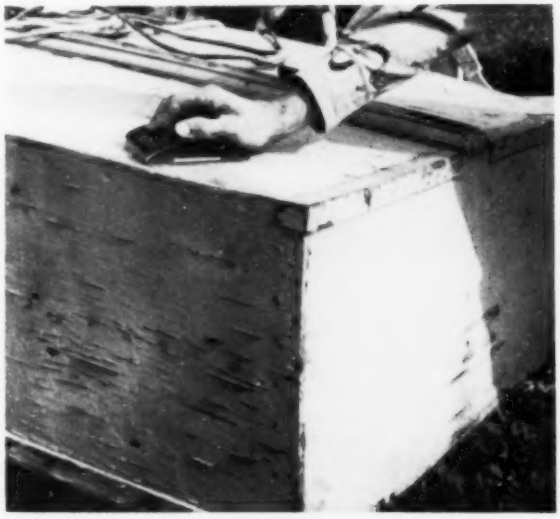
FOR NEARLY EVERY BOATMAN, planning is the important start for fitting out. Organizing time, tools, and materials, and scheduling work to economize weekend hours, can mean the difference between fun and drudgery when getting a boat in shape. Going afloat half prepared will mean plenty of work for the do-it-yourself boatman later in the season. And to be still fitting out when other folks are already out cruising is no fun at all.

A typical solution is to make check lists of things to do; plus another list of supplies to purchase. A step further should be to organize chores as: dry weather work; wet weather work; home work or night work. Still another time-saving step is to list and *order* all materials, supplies and equipment well in advance of dates needed.

How many of us have wasted precious weekend hours standing in line at the local boat supply store, frequently to find that critical items are out of stock? And how many of us have thought that we remembered everything, only to find, finally, that an important item had been forgotten?



Fiberglass, plywood, metal, or planked—your hull needs periodic examination to determine if cracks, rot, corrosion, or borers may be damaging it. New products and tools make it even easier this year to get your craft ready for springtime launching.



Paint may be the spring boatman's best friend. Sanding or removal and new coats may make her look new.

Fiberglassing can now repair, improve appearance, and add new strength as well when carefully applied.

The following suggestions are reminders to help the boatman plan his fitting out work, or fun, whichever it may be—in the interest of safety, sound maintenance, comfort afloat, and economy of time.

## PAINTING AND HULL REPAIR

Aside from overhauling the engine, which is dealt with elsewhere in this issue, painting is the principal job in fitting out most boats. The popularity of fiberglass has cut down painting as a universal chore, but not even the fiberglass boats can do without antifouling bottom paint in salt water. Also many boatmen paint their fiberglass boats for decorative purposes, particularly the interiors where comfort and eye appeal are important, or scuffed surfaces need touching up.

New plastic paints have entered the marine field in recent years, and the boatman contemplating using a vinyl or epoxy coating should carefully study the manufacturer's instructions for proper method of application, special primers, etc. In general all of the plastic paints require that the surface to be covered be absolutely dry (as it should be for any conventional paint), that it be free of oil and grease, and that it be properly primed with a product probably available from the manufacturer.

## WOODEN BOATS

The waterproof characteristics of "plastic" paints are particularly suited to wooden boats, but the classic method of preserving and beautifying hulls with oil primer and standard paint and varnish is still popular. Where conventional marine paint it to be used, a preservative and primer of 50-50 mixture of raw linseed oil and turpentine applied hot will seal the wood and prevent shrinking and swelling. Three or four coats rubbed into the wood with a stubby brush, followed by a coat containing only half as much turpentine and a little Japan drier to seal the surface, will prepare the boat for painting or varnishing. And varnished wood brightwork is unsurpassed for beauty.

## CAULKING AND GLUING

Caulking seams is a job best left to the professional unless you use one of the new polysulfide synthetic rubber sealants based, for example, on a Thiokol or neoprene formula. With a boat of carvel construction, it takes the place of regular caulking compound and bonds in place to form a permanent, water-tight seal, yet "works" with the hull, expanding as the wood dries out. And as good this year, as always, are the older time-proven caulking compounds, which are less novel but sometimes much easier to use.

Disadvantages of some "miracle" products are short pot life and the care required mixing a batch. For many jobs a conventional marine glue, or one of the other plastic glues for nonhardening compounds will suffice.

FITTING OUT continued on next page

Recheck fire extinguisher and all the other items of required and needed safety equipment. Review the Coast Guard regulation to assure compliance.

Complete your fitting out by contacting the nearest branch of your Coast Guard Auxiliary. Their examination will show your boat ready for safe use.

## METAL BOATS

Three specific functions are required of metal marine paints, and the metal boat owner will want to be sure that all are complied with in fitting out his hull. The success of the first, or primer, coat depends primarily on the cleanliness of the metal. All old paint, dirt, and corrosion should be removed before applying the primer coat. Following coats should be essentially anti-corrosive in nature, and may or may not contain decorative pigments. Final decorative coats, like underlying coats, should be scuff resistant—requiring a good quality metal marine paint well brushed out and permitted to dry thoroughly between coats.

Anti-fouling bottom paint should be applied over the second, protective coating. Under no circumstances should anti-fouling paint come in direct contact with bare metal—accelerated electrolysis can result.

## FIBERGLASS BOATS

Although fiberglass and fiberglass protected boats will withstand considerable abuse, the fabric may in time begin to wear or deteriorate in spots. There is nothing difficult or mysterious about repairing fiberglass surfaces—just combine resin and catalyst in the recommended amounts, apply properly, and allow sufficient drying time before sanding.

Fiberglass repair kits, complete with instructions, are to be found nearly everywhere boat supplies are sold. Paint in pressurized cans is even more popular this year to touch up fiberglass boat interiors.

Colored resins rather than paint may be used to finish the boat's exterior; but, if the boat is to be used in salt water, anti-fouling bottom paint is required here as with a boat built of any other material.

## SAILS AND RIGGING

All rigging should be examined, repaired, or replaced. Standing rigging and fittings of bronze, stainless steel, Monel or Titanium will probably need little attention beyond greasing gears, etc. Aluminum fittings may need cleaning. Galvanized wire will probably require an oil bath or replacement if corrosion is serious. Oxidized metal fittings should be cleaned bare, primed, and painted as discussed above for metal boats.

What was once a trial trend to synthetic material for rope and sails is now an established practice, almost to the exclusion of manila as a popular fiber. In selecting new rope for running rigging, Dacron is recommended for halyards, because it does not stretch; and nylon is desirable for sheets and mooring lines precisely for its elasticity. Another new rope gaining acceptance for some uses—because of its buoyant quality—is Marlex rigid polyethylene. For mooring line, manila is still popular. It is somewhat less subject to chafe than nylon, and of course it is less expensive.

An important advantage among others in selecting synthetic sails over cotton is their mildew proof quality and longer life. For anything beyond the simplest repairs to sails of any kind, the boatman is recommended to use a professional sailmaker.

## FLOTATION

Fitting out is a good time to insure flotation in your boat, unless it cannot be "sink-proofed." The popular flotation material today is foam, either carved to shape from precast blocks and inserted in out of the way places, such as under the fore-deck, side-decks and after-deck where it will keep the boat afloat and upright when flooded, or poured in place in liquid form. Polyurethane foam is becoming known among the new flotation products on the market, and application by the do-it-yourself boatman is not difficult. But it does require careful preparation and fast work since the pot life of the product is only 45 seconds.

## SAFETY EQUIPMENT

A good first-aid kit is an absolute must in any well equipped boat, and the skipper may want to go further in stocking his medicine chest. A reliable book on first-aid and medical emergencies afloat is also recommended and will prescribe the kind and number of pharmaceutical supplies to be carried.

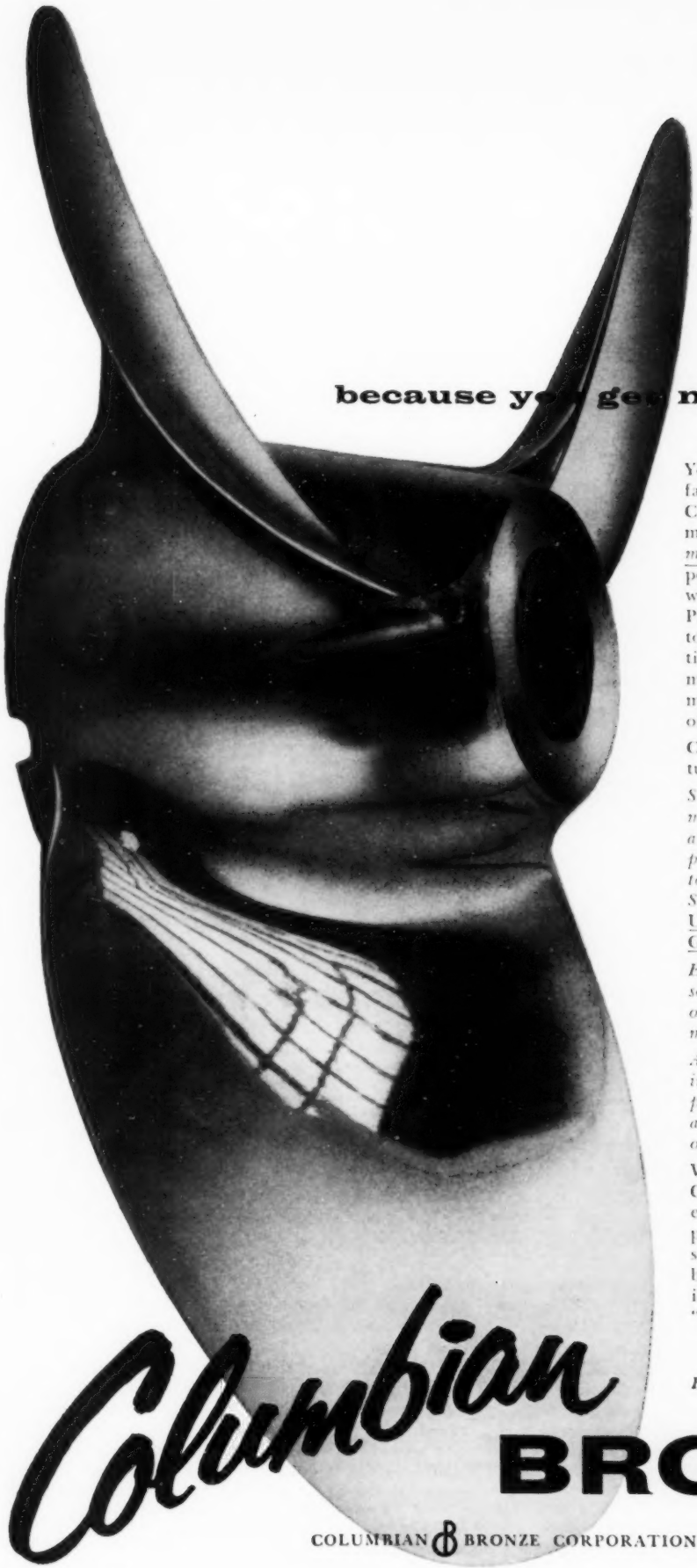
Safety equipment, emergency signals, and so on, are a subject unto themselves—and a very important one, worthy of more than passing mention. Every boatman in the country should obtain a copy of the U. S. Coast Guard's brand new publication, "PLEASURE CRAFT," containing highlights of the Federal Boating Act of 1958; minimum legal requirements for boats; and valuable suggestions for safety. Officially designated CG-290, Revised January 2, 1959, copies are available from Coast Guard Headquarters, Washington 25, D. C.

## CHECK LIST

Other important jobs, from repairing upholstery, to trailer maintenance, to calibrating compasses, will occur for every boat owner; the check list included with this discussion of fitting out problems will suggest a few which might otherwise be forgotten.

As a last favor to himself, his family and friends who will be using the boat, and to the boat itself, the skipper can check off the last item on his fitting out list by passing a Coast Guard Auxiliary Courtesy Examination. With a Coast Guard decal for 1959 on his windshield, he can shove-off with an easy mind—confident that the odds are with him for a safe and pleasant boating season.

—PHIL REAVIS



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# CHECK LIST FOR FITTING OUT

### HULL, EXTERIOR

— Remove old paint, sand and caulk seams, if necessary
— Examine hull for rot or damage, make repairs
— Examine hull fastenings and through hull fittings make necessary replacements and repairs
— Clean bottom thoroughly, prime for anti-fouling paint
— Fit anti-electrolysis cathodes, if necessary
— Prime wood or metal as applicable
— Paint with marine paint
— Examine stern bearings, grease or adjust, if necessary
— Examine propeller for nicks, dents, etc.
— Examine rudder assembly and make necessary repairs
— Anti-fouling paint, if necessary, just before launching
— Touch up water-line

### HULL, INTERIOR

— Examine for mildew, treat where necessary
— Check for rot in critical areas such as under ice box and in poorly ventilated spaces
— Clean bilges and limber holes and treat with oil, Cuprinol or paint, as desired
— Clean, prime and paint, or varnish, woodwork where required
— Wash woodwork in good condition, applying fresh coats of paint or varnish, or wax, as desired
— Check condition of all through hull fittings from inside
— Check through deck fittings, including electrical fittings

### CABIN EQUIPMENT

— Inspect and repair upholstery, bedding
— Overhaul galley stove, fresh water pump, etc.
— Adequate cabin heater aboard, properly ventilated
— Ice box free of leaks
— Utensils, dishes and service aboard
— Provisions
— Personal toilet articles
— Overhaul marine toilet
— Check cabin lights and wiring, spare bulbs and fuses

### SAILS, RIGGING & DECK GEAR

— Check for wear and repair sails, ties on batten pockets, etc.
— Wash and air sails and sail bags
— Check to assure that battens fit, are sanded smooth
— Sufficient sail stops
— Emergency sewing kit
— Turn halyards end for end, ditto sheets, or replace
— Mast slides in good shape
— Check standing rigging for corrosion, treat or replace
— Check all blocks, overhaul
— Check miscellaneous lines, including mooring lines, for wear, replace where necessary
— Overhaul deck hardware, winches, etc.
— Overhaul and adjust steering gear
— Anchors and ground tackle in good condition
— Navigation lights, working lights, wiring, all okay
— Paint and varnish where necessary

### SAFETY EQUIPMENT

— Medicine chest aboard, including first aid instruction book
— C. G. approved requirements (see below)
— Other distress signals: daytime (smoke), nighttime (rockets), dye markers, water lights, etc.
— Coast Guard Auxiliary Courtesy Examination and Decal

### MISCELLANEOUS

— Dinghy work
— Boat hook aboard
— Clocks, barometers, etc. aboard, working
— Curtains, covers, etc., repair and wash
— Screens, insect
— Spares for steering gear
— Graphite in locks
— Navigation charts and chart reading equipment
— Portable light
— Chafing gear
— Fenders
— Funnel for fuel and water
— Bosun knife
— Tools
— Foul weather clothing

# COAST GUARD EQUIPMENT REQUIREMENTS

### CLASS "A" MOTORBOATS

(less than 16 ft. long)

— One C.G. approved life preserver for each person on board
— One B-I* hand portable fire extinguisher
— Two or more ventilators to enclosed engine and fuel space in most decked boats**
— Flame arrestor on carburetor on most inboard motorboats**

### CLASS "1" MOTORBOATS

(16 ft. to 26 ft. long)

— Same equipment as required by class "A" motorboat is required on this class boat plus the following:
— Hand, mouth, or power operated whistle or horn capable of producing a blast of at least 2 seconds duration and audible for a distance of at least ½ mile

### CLASS "2" MOTORBOATS

(26 ft. to 40 ft. long)

— Same life preserver requirements as class "A"
— Bell
— Hand or power-operated horn or whistle (2 seconds, 1 mile)
— Two B-I* hand portable fire extinguishers (One B-I extinguisher if additional fixed unit in engine space)
— Ventilators and flame arrestor as for class "A"

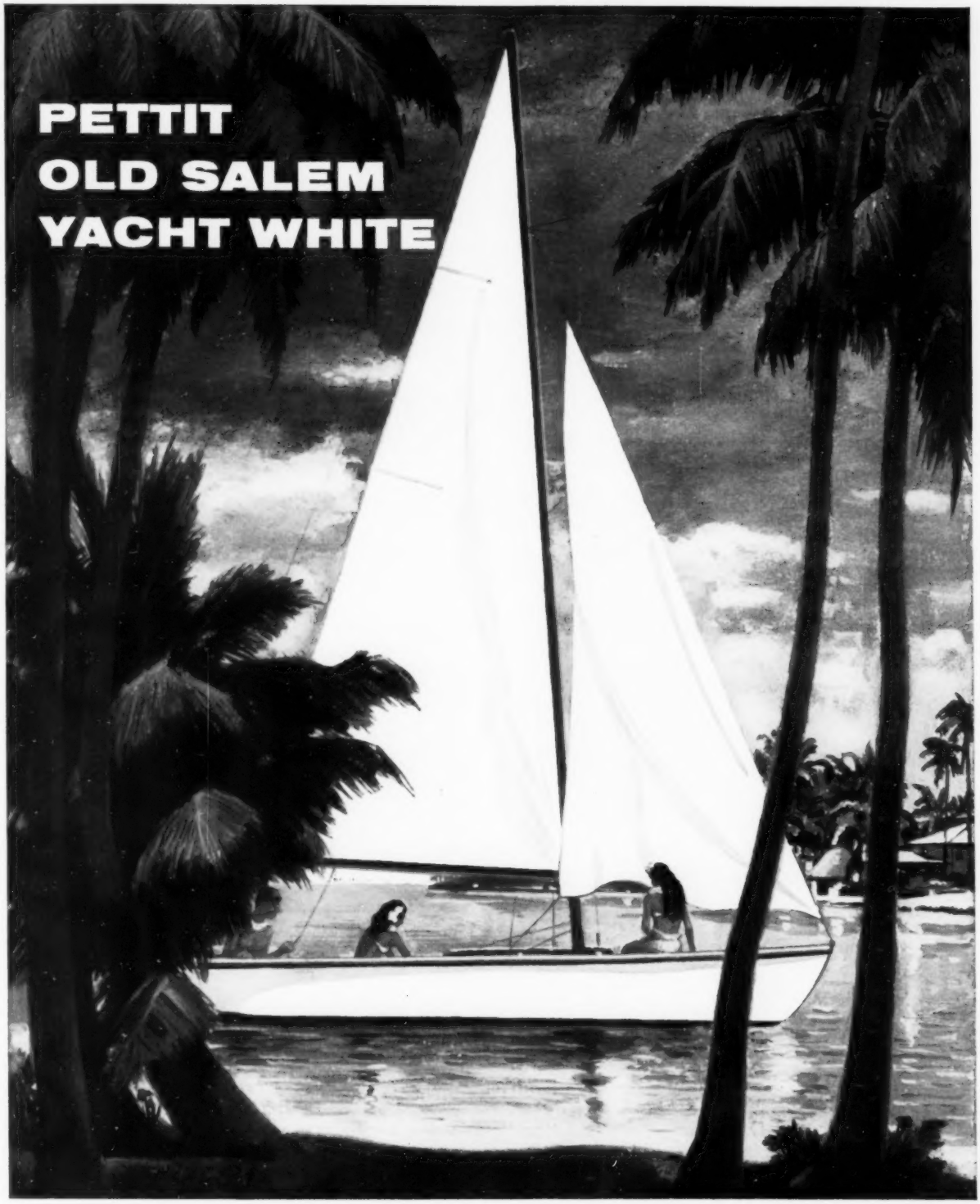
### CLASS "3" MOTORBOATS

(40 ft. to 65 ft. long)

— Same life preserver requirements as Class "A" except buoyant cushions and vests *not* acceptable
— Bell
— Power-operated horn (2 seconds, 1 mile)
— Three B-I* hand portable fire extinguishers (Two B-I's if additional fixed unit in engine space)
— Ventilators and flame arrestors as for class "A"

** B-I type approved fire extinguishers are briefly described as follows: 1¼-gal. foam; 4-lb. carbon dioxide; 2-lb. dry chemical (see CG-290 for detailed information).*

*** Detailed information and exceptions to the rule are outlined in "Pleasure Craft", CG-290, available from U. S. Coast Guard Headquarters, Washington 25, D. C.*

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SPRING FITTING OUT

# TUNE-UP YOUR ENGINE

## Inboard — Outboard — Diesel

By Tom Bottomley

SPRING TIME is tune-up time for the marine engine, whether outboard, gasoline inboard or diesel. Work done now will insure good operation throughout the season. If your climate is such that you enjoy year-around boating, the maintenance outlined here should be done at least three times a year. In any case it is far easier to do engine work while the boat is in the yard or on a mooring than it is to make emergency repairs in unsheltered water. And engine failure is most often due to owner neglect.

While tune-up and maintenance procedures differ for outboard, gasoline inboard and diesel powerplants, they do have one thing in common: they should be kept clean, and engine compartments, where present, should be kept clean. It's more than a matter of beauty and sanitation. A clean engine is less susceptible to corrosion than one covered with dirt and salt. It is easier to spot fuel, oil or water leaks when they occur, and on gasoline engines, cleanliness helps prevent malfunction or failure of the ignition system. Fuel and oil leaks are particularly dangerous in an inboard installation. Gasoline, diesel oil or crankcase oil in the bilges present explosion and fire hazards.

### OUTBOARD ENGINES

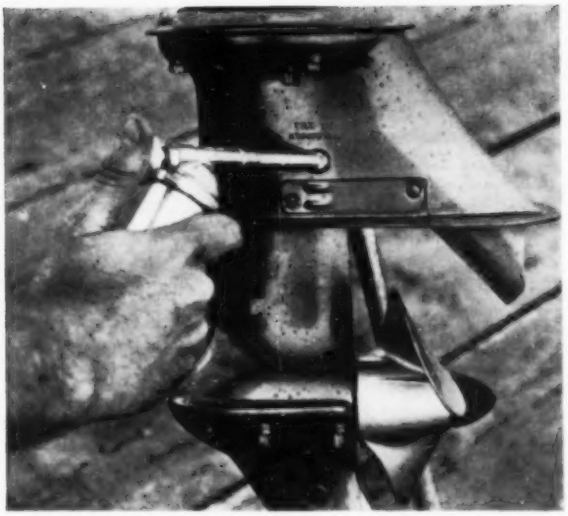
*Ignition system:* Remove and inspect spark plugs. If they are in good condition, have the electrodes cleaned and re-gapped. The correct gap is specified in the owner's manual. If the electrodes are burned to the extent they cannot be re-gapped, or if the insulator is rough, cracked, broken or blistered, replace the plug with a new one of the type specified by the manufacturer. It is a good idea in any case to buy a set of spare plugs to keep with your tool kit. Be certain that spark plugs, when installed, are clean and free from grease or dirt on the insulator, and that the high tension leads from the magneto are also clean and have no worn or frayed insulation. Dirt on plugs or leads can lead to sparks anywhere except where they should be —at the electrodes.

This is the time to have magneto points checked, and unless you know exactly what you are doing, it is best to have this done by an authorized service dealer for your motor. Remember that more outboard damage and expense is caused by owners playing with magnetos than from almost anything else except neglect of the lower gear case. Magneto breaker points should function properly for at least 100 hours of normal operation before any service is needed.

If equipped with electric starting, check the leads from motor to starting switch and battery terminals for frayed or worn spots. Any time bare metal wire is exposed to air in a boat, it is also apt to get wet. Water causes corrosion and rust, which eats through the wire. Be certain that your wiring is completely weatherproof. If the electric starter or generator, if so equipped, need service, it should be done by a competent, authorized repairman

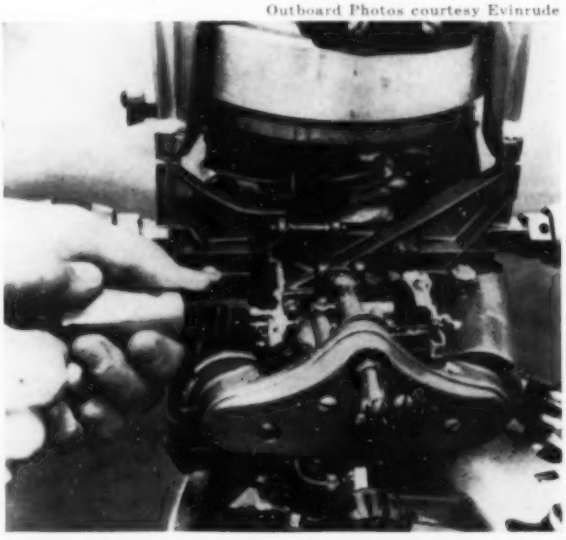
*Fuel system:* Drain any old fuel remaining in the gas tank and refill with fresh gas and oil in the proportions recommended by the manufacturer. Use of "regular" grade automobile fuel can be permissible if outboard oil is unavailable, but stay away from automotive engine oils. The additives and detergents in these are designed to keep the oil in a car engine clean and functional for thousands of miles of operation. In a two-cycle outboard engine these same additives tend to form deposits on spark plugs. Use oil compounded specifically for outboard use.

Remove the fuel filter in the tank, if it is so equipped, and clean it carefully in benzine. This filter is generally part of the fuel pick-up tube unit, and is removed by unscrewing the elbow at the tank to which the fuel line is connected. Check fuel line and its fittings for possible



Use SAE 90 automotive gear lubricant in lower unit after check of cotter pin, shear pin and propeller.

Outboard Photos courtesy Evinrude



Give throttle linkage liberal coat of grease, which will prevent most trouble that can arise here.

leaks, and reconnect to the tank. Disconnect the flexible fuel lines in the powerhead, and remove fuel filter. This can be cleaned in benzine, or replaced if it is badly gummed. Also inspect these fuel lines and fittings for wear or leakage, and replace if necessary.

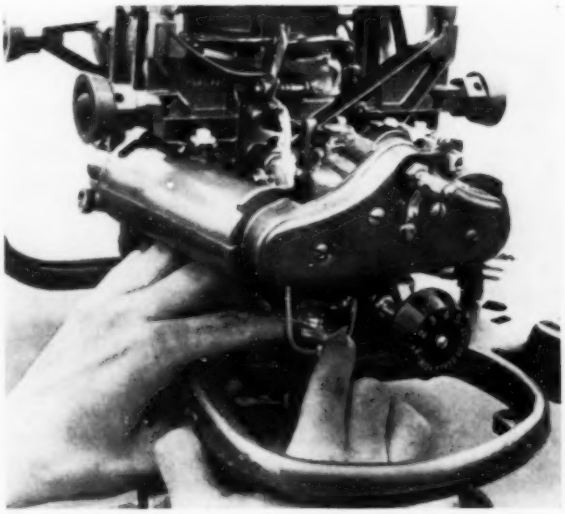
Drain and clean carburetor—or carburetors—if so equipped. Do not attempt to change adjustment of any jets; this, if needed, should be done by your serviceman. However an air pump can be used to clear out dirt particles. Check the float valve to make sure that it operates freely and is not gummed up. When reassembled and the engine is operating, adjust high speed and low speed mixture controls according to your owner's manual.

*Cooling system:* This should be flushed regularly with fresh water if the engine is operated in salt water, or fresh water where silt is present. It should certainly be flushed at the end of the season before winter storage. In any case it does no harm to flush it again before putting your engine in operation after storage.

*Lower unit:* Correct lubrication here can save expensive repair costs. On most engines the lubricant is forced in through a fitting near the bottom of the gear case until it runs out an upper hole. In some cases this upper hole is

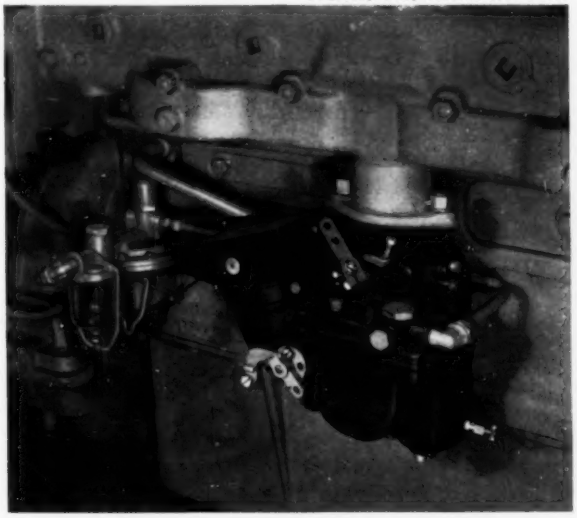
## GASOLINE INBOARD ENGINES

*Ignition system:* Check spark plugs and high tension ignition leads as for outboard engines. Here, too it's a good idea to pick up a spare set of spark plugs to keep on the boat. Remove the distributor cap, clean and adjust the contact breaker points to the manufacturer's specifications. If the points are badly worn or pitted, replace them. If points are replaced, it's a good idea to install a new condenser. Use vaseline or a similar grease to lightly lubricate the cam that operates the moveable arm of the points. Put a few drops of S.A.E. 30 oil on the distributor shaft itself —some have wicking that holds the oil, others do not. But do not allow oil to get on the points, as it will cause pitting in short order. Clean up the contacts on the inside of the distributor cap with a knife, and clean with cloth saturated in kerosene; if they are badly pitted install a new cap. The same thing goes for the rotor. The cost is slight and it insures a strong spark at the plugs for a healthy-running engine. This is a good time to check ignition timing. This varies from one engine to the next, and instructions in your owner's manual should be followed. Timing marks are found either on the flywheel, and are observed through an inspection hole in the flywheel cover, or the marks are



Remove and clean carburetor sediment bowl. Filter element keeps sludge, dirt from reaching carburetor.

Courtesy Gray Marine Motor Co.



Remove and inspect flame arrestor on carburetor at least once a month. Clean in kerosene if necessary.

opened by removing an air vent screw. Your owner's manual will outline the correct procedure and lubricant for this job.

*Propeller:* Use a file to dress down small nicks or dents. Remove the propeller and have your dealer check it for balance and pitch. This is a good time to pick up a supply of shear pins, if required, to keep in your tool kit.

*Remote controls:* Apply a drop or two of S.A.E. 30 engine oil to control linkage joints and bushings. Check control cables for kinks and sharp bends. Remove throttle and gearshift remote control housing and spread gear lubricant on gear teeth and tracks. Do not use a hard grease as it will ring or groove, and leave the assembly dry.

*Miscellaneous:* Apply a little penetrating oil at the twist-grip throttle, transom clamp screws and cowling screws. Check the steering friction adjustment screw or bolt. It should be tight enough so that the motor will not turn by itself, and not so tight that steering is hard and jerky. Go over the entire rig with a good automotive past wax after touching up worn or scratched spots on the surface with paint.

on the crankshaft pulley at the front of the engine, and should line up with a mark stamped on the front of the block. Generally, the spark plug at the front of the engine should fire about four to seven degrees before the piston reaches top dead center, when regular marine gas is used. Again, check your manual for the correct setting.

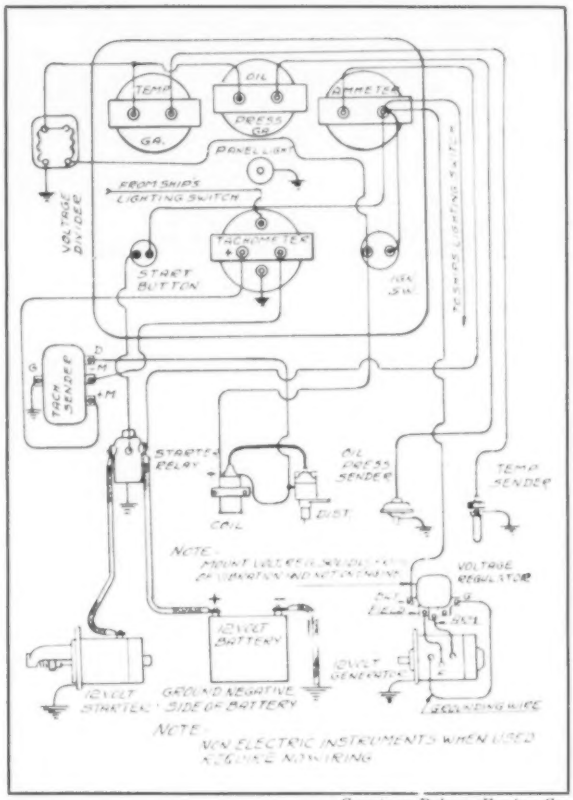
Check the primary wiring circuit for worn or frayed connections and for loose connections. These are the leads that run from battery to ground, battery to ignition switch, voltage regulator and generator. Replace any wiring that is in poor condition.

*Fuel system:* Clean filter strainer in the filler pipe of the gas tank and the one on the engine itself. The latter may be part of the fuel pump unit, or it may be between the pump and the carburetor. Drain any old gasoline from fuel tank (this should be done as part of fall layup), and disconnect fuel lines. Blow out the lines with compressed air and reconnect. Make sure that all lines and fittings are free of leaks and worn spots or cracks that could start to leak. Remove the carburetor backfire trap and wash it thoroughly in clean benzine. Remove the carburetor itself

ENGINE continued on next page

Courtesy Gray Marine Motor Co.

**Clean and adjust breaker points to proper gap with feeler gauge. Breaker arm must be resting on a high point of distributor cam during this measurement.**




Courtesy Palmer Engine Co.

**Typical wiring diagram for primary circuit of 12-volt system. Check to make sure all connections are clean and tight, that wiring insulation is in good shape.**

and give it a thorough cleaning in one of the commercially-prepared solvents for this purpose. Unless you have had considerable experience with carburetors, do not attempt to dismantle it. However, you can remove the cover over float chambers to clean the float valve itself and, using compressed air, blow out any jets that are accessible. A bicycle tire pump is handy for this. Replace carburetor and backfire trap.

*Cooling system:* Close all drains opened for winter layup, and replace all plugs. Make sure that intake strainers are clean, and that water pump and thermostat operate properly. Make certain that there are no leaks in the system. If the engine is cooled by salt water, remove an intake or outlet line, whichever is most accessible, and check for salt build-up within the line. If an engine operates fairly hot, above 140°, salt build-up is fairly rapid, and can block water passages within lines and the engine itself. If there is a heavy coating of salt deposits, it's best to have the engine hauled, because removing the deposits within the engine is a major job. If an engine runs "cool," below 140°, it should remain clean.

If a fresh water cooling system is used for an engine operating in salt water, this problem does not exist. Salt deposits may build up in the keel water cooler or heat exchanger, but these are made so that cleaning is fairly simple.

*Lubrication:* If preservative engine oil was used in the crankcase and gearbox, drain and replace with fresh oil of the proper viscosity (weight) and service. All marine engine manufactures recommend heavy duty "HD" oil. Check your owner's manual for the proper oil for your particular engine.

*Exhaust system:* Check exhaust manifolds to be sure that bolts holding them to the engine are tight, and that the gaskets between manifolds and engine are in good condition. If manifolds are water cooled, check for leaks. Inspect manifolds and exhaust pipes for pinholes, loose connections at fittings. Carbon monoxide is highly poisonous, and it doesn't take much in the confines of a boat cabin to provide a fatal dose. If exhaust lines run behind bulkheads or cabinets, under floorboards or anyplace else that is not readily accessible, this is the time to have the routing changed so that the exhaust system is short as possible, contains as few bends and connections as possible, and is out where it can be inspected easily along its entire length.

*General:* This is the time to have such items as V-belts, V-drives, thrust bearings, propeller shaft and propellers checked. Also check gearshift linkage for ease of operation and freedom from kinks. Check motor mount bolts for corrosion, and replace if necessary. Install and hook up a freshly-charged battery, observing polarity specified in the engine manual.

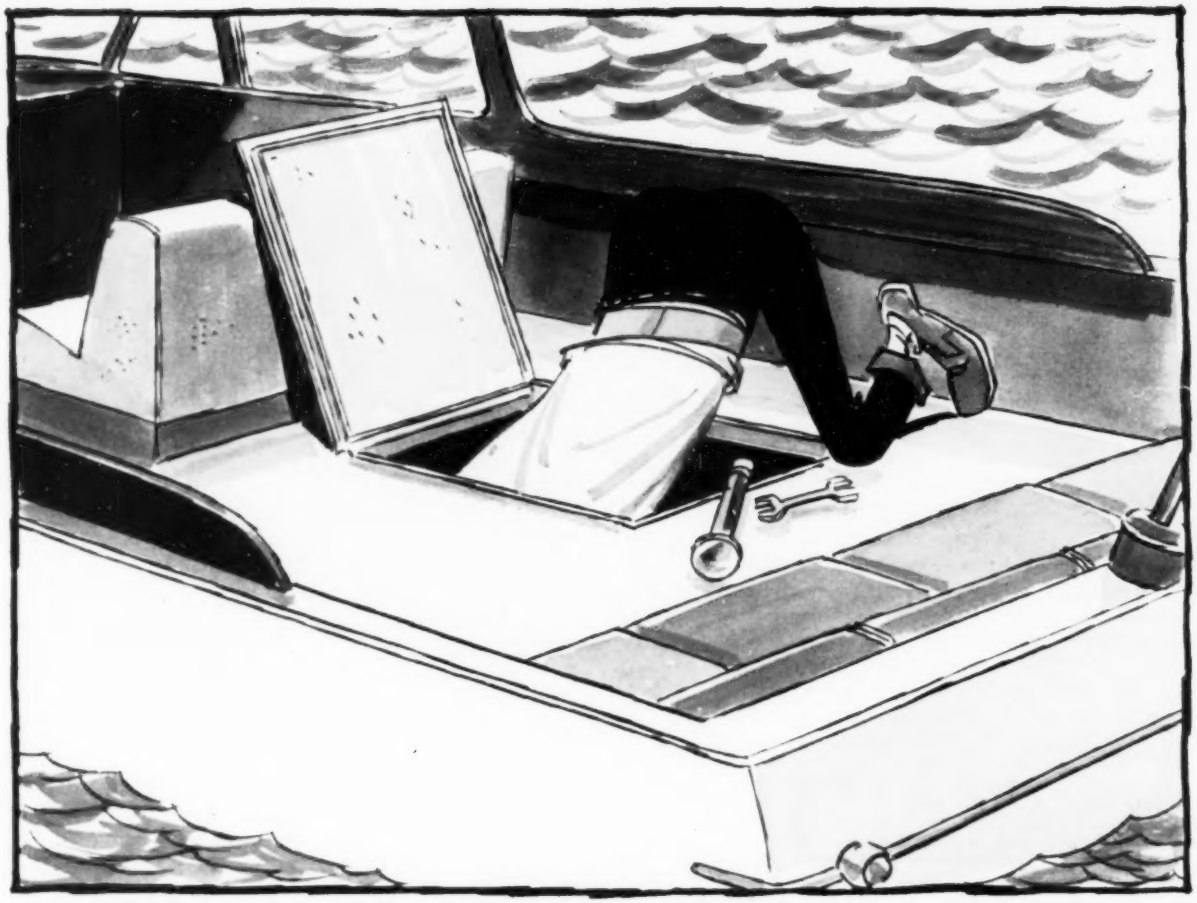
## DIESEL ENGINES

With proper owner maintenance, a diesel will give excellent service for many years with little required in the way of mechanical adjustments. However, regular thorough tune-ups should be made about every 500 hours of operation. Just what must be done depends on whether the engine is two- or four-cycle, and is equipped with a mechanical or hydraulic governor. In any case, procedures and specifications given in the owner's manual must be followed.

*Fuel system:* Drain fuel injection pump and governor housing of preservative oil and refill to normal level with recommended type and grade lubrication oils. Fill fuel tank. Renew all fuel oil filter elements, clean all strainers and filter housings. Clean and check fuel lines and fittings as recommended for gasoline engines.

*Cooling system:* Close all drains and valves opened for winter layup. Make sure that intake strainers are clean and that there are no leaks in the system. If a heat exchanger or keel cooler is used, fill system with soft water, if pos-

ENGINES continued on page 82



# *Take a Look-See For Safety!*

You'll have a safer, happier boating season if you make a careful inspection now, before the season starts.

Be sure your engine is in tip-top shape, clean and operating smoothly. Make a positive check of fuel tanks and fuel systems to be certain there is no corrosion or leaks—everything is tight and sound. Go over all electrical equipment and wiring. Above all see that your fire extinguishers are full and in good working order.

Then, after you have made sure your life preservers, buoyant cushions and all signaling devices are in good working condition, you'll be ready —as a good skipper—to cast off with safety.

**To be protected against financial loss from the unexpected accident or liability claim, ask your insurance agent or broker to arrange for yacht insurance through the MARINE OFFICE OF AMERICA.**

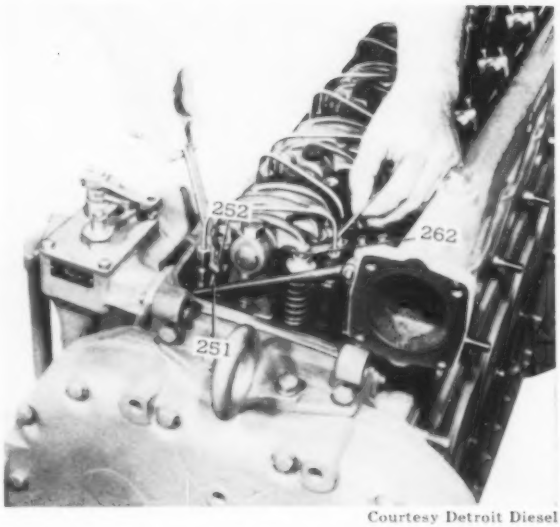
## MARINE OFFICE OF AMERICA

**123 WILLIAM STREET • NEW YORK 38, N. Y.**

*Offices In Twenty-Eight Principal Cities*

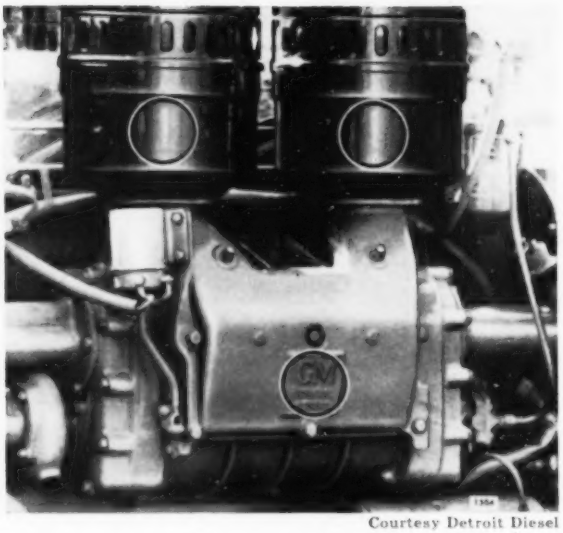
**Member Companies:**

**• The American Insurance Company • The Continental Insurance Company • Fidelity-Phenix Fire Insurance Company • Firemen's Insurance Company • Glens Falls Insurance Company • The Hanover Insurance Company • Niagara Fire Insurance Company**




Courtesy Detroit Diesel

Owner can adjust exhaust valve clearance on diesel engine with engine at operating temperature. Use feeler gauge between rocker arm and valve stem. Operator's manual gives correct valve clearance.



Courtesy Detroit Diesel

Remove and clean air cleaner cups and center tubes, refill cups to correct level with heavy-duty oil. Inspect blower, circled at bottom of picture, for scored rotors, housing or end plates, and for leaks.

sible, and add rust inhibitor. If a thorough cleaning is in order, the system should be reverse-flushed (this should be done at the time of winter layup).

*Exhaust system:* Follow procedures outlined for inboard gasoline engines.

*Air system:* Drain, clean and refill oil-bath air cleaner, clean air box drains, crankshaft ventilation tube, and blower screen.

*Lubrication:* If preservative oil was used in the crankcase

ENGINE continued on page 84

AMERICA'S MOST Complete Line OF FIBERGLASS SAILBOATS

a fleet of lively performers to answer every sailor's dream

What's your choice: a swift racer, a pleasure craft for week-end cruising, a family boat for racing and day sailing? It's here . . . in superb designs that will thrill every sailor, young or old. Built into each one . . . the rugged safety and carefree fun of fiberglass. No caulking, no sanding, no painting; you'll spend those hours afloat! So take your choice — answer the call of that freshening breeze.

▲ 10' VIXEN

16' REBEL ▲

▼ 12' NIPPER (plywood)

write for brochure to

RAY GREENE & CO.
PIONEER IN FIBERGLASS CONSTRUCTION
502 S. BYRNE ROAD, TOLEDO 9, OHIO

## More time for fun the whole season long...

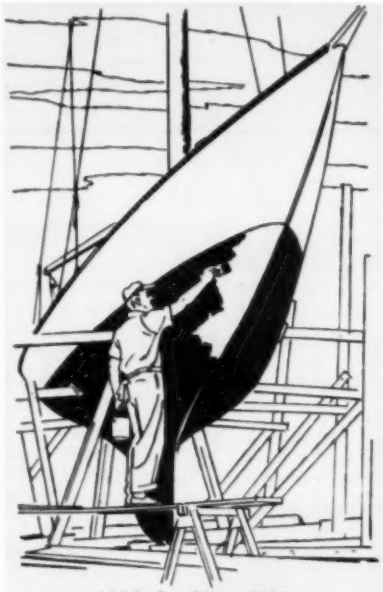
# RIPOLIN

## SUPERB LINE OF MARINE FINISHES

From the "auto-trailer fleet" to the sleek yacht class, all boats now can have one thing in common: a rich look of extra luxury that will last the entire season! It's been proven through over half a century in Europe, where Ripolin Marine Finishes first became popular and still lead in demand.

There's a Ripolin product for every use—from high-gloss topside enamels and superb stains to dependable, protective engine enamels. This means that you start the season with the best, the fine full-bodied Ripolin products that mean no mid-season painting. Now made by Glidden in the United States under exclusive license, and available from Glidden paint dealers or your marine supplier.

Hull, Deck and Topside Enamels



Anti-Fouling Bottom Paints and Hard Racing Finishes

### A COMPLETE LINE

- Hull, Deck and Topside Enamels, resistant to marine hazards. Choose from 27 authentic colors, plus Yacht Whites and Blacks.
- Semi-Gloss Interior Cabin Enamels, alkyd fortified. In a wide range of pastel colors.
- Stains and Varnishes, specially formulated for marine use.
- Bottom Paints—anti-fouling or racing bottom finishes.
- Engine Enamels, White Undercoat and Liquid Red Lead, the easy-to-apply rust-retardant metal primer.
- Fine marine brushes.

Manufactured by The Glidden Company under exclusive license from Le Ripolin

QUALITY Glidden PRODUCTS

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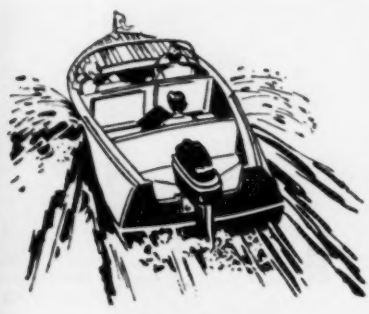
Semi-Gloss Interior Cabin Enamels



Stains and Varnishes

**Attach them yourself for secure protection...**

**DOT®**

**MARINE FASTENERS**

*all brass—won't rust—sure to hold*

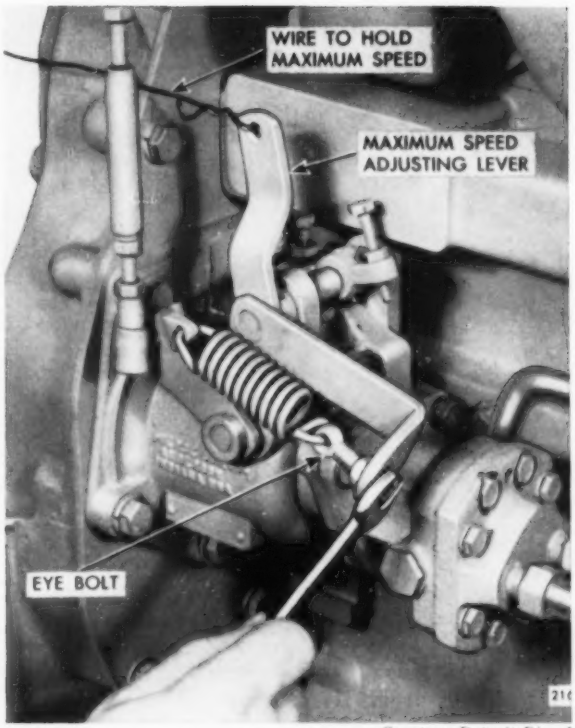
Depend on DOT to secure covers on central panels, cockpits, hatches, outboard motors or dinghies. Easy to attach, engineered for precision performance; work fast, hold fast; no maintenance, no replacement. There's a fastener for every requirement in DOT's special Mariners' Line—brass throughout with nickel, chrome, brass or black finish. Carr Fastener Company, Division of United-Carr, First in Fasteners, Cambridge 42, Mass.

**Just ask your marine hardware supplier for Dot Fasteners**

**Lift-the-Dot Snap Fastener,** locks on three sides, can readily be unfastened by lifting the Dot.

**Dot Durable,** medium-size button-type snap fastener. Simple to attach, combines tenacity with ease of action.

**Fasteners illustrated can be supplied with rivet, machine screw or wood screw type studs.**


Courtesy Detroit Diesel

**Check speed droop. Engine speed should be stable when governor droop is 7½ to 10 per cent of full load speed. Back off inner spring eye bolt if droop is too low; back off outer bolt if droop is too high. Tighten opposite bolt to keep adjustment.**

## ENGINES continued

during storage, it is advisable to run the engine for 20 minutes at a fast idle after a slow warmup before draining it. This is done so that the warm preservative oil will drain completely. Refill crankcase and gearcase to proper level with recommended grade and type of oil. Install new oil filter elements and gaskets at this time. If starter motor has wick-type oilers, remove pipe plugs and apply a few drops of engine oil on each wick. Lubricate tachometer drive and throttle control mechanism with a short-fibre, high-grade bearing lubricant at pressure fittings. Clutch throwout bearing should be lubricated sparingly with the same grease. This should be done every eight hours of operation. Remove clutch inspection hole cover and apply engine oil sparingly to the clutch release lever and link pins, and to bearing ends of clutch release shaft with a hand oiler.

*General:* Remove all seals and covers used for winter storage, such as tape or other waterproof material over the air cleaner, exhaust pipe and crankcase ventilator openings. Remove zinc electrode at inlet side of raw water pump and heat exchanger and clean with a wire brush. If excessively worn, replace it with a new electrode. Remove cover band on starter motor and inspect commutator and brushes for wear. Clean commutator if necessary with No. "OO" sandpaper, and reseat brushes. Install and connect a freshly-charged battery.

Maintenance procedures of gasoline inboard, diesel and outboard engines outlined here do not necessarily apply to all engines of each type. The owner's manual supplied with every engine is the best source for specific information. If you do not have such a manual for your engine, write the manufacturer for one. —Tom Bottomley

# Protect your boat with mooring lines of Du Pont nylon for maximum security

When storm flags are whipping in a rising gale, it's wonderfully reassuring to know your boat is protected by nylon mooring lines. Tough nylon lines have up to five times the shock absorbency of ordinary ropes. Size for size, they're twice as strong as lines made with conventional fibers, take stress and strain that would quickly snap less durable lines.

Nylon mooring lines have other important advantages, too. They stay light and flexible—are easier to handle—wet or dry. They stubbornly resist wear and weakening from rot and mildew—outlast conventional lines many times over. Ask for nylon the next time you buy anchor and mooring lines for your boat.

**NEW . . . sails and running rigging of DACRON**

Du Pont "Dacron"* polyester fiber has *unusual stretch resistance*—combined with strength, "just-right" flexibility and resistance to rot and abrasion. That's why it's preferred for running rigging and sails that mustn't "give"—even in heaviest weather.

**WRITE FOR FREE COPY** of "The Ten Most-Asked Questions About Yachting Lines of Nylon and 'Dacron'." E. I. du Pont de Nemours & Co. (Inc.), 5518 Nemours Bldg., Wilmington 98, Delaware.

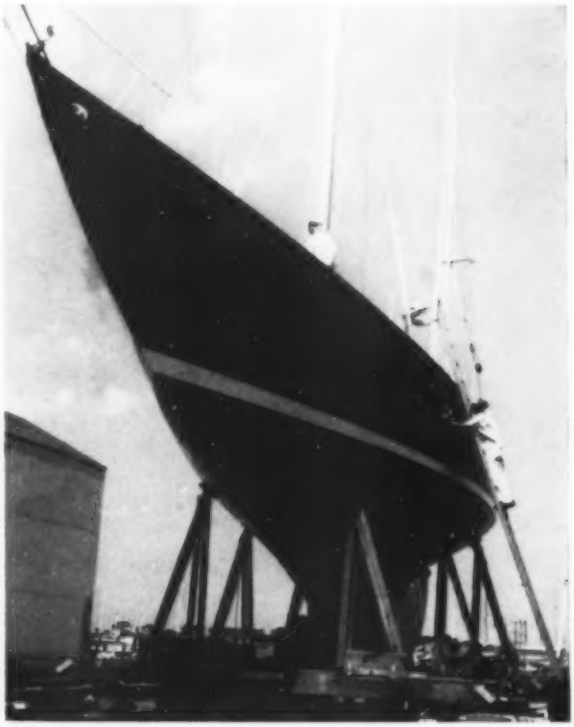
*"Dacron" is Du Pont's registered trademark for its polyester fiber. Du Pont makes fibers, not yachting lines or sails.

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

**NYLON LINE**—twice as strong as ordinary-fiber line...not weakened by rot or mildew...easier to handle

# SPEED UP YOUR SANDING



Bolero's gleaming hull reflects many hours of sanding and painting, as well as the face of this craftsman giving her one last touch, before she goes down the ways into the water.

Photos from Behr-Manning

Sanding, paint, and varnish have made this old hull like new. Careful refinishing extends life of the boat as well and greatly increases its resistance to wind and weather.

**Modern power-tool methods now make wood, aluminum, and fiberglass refinishing a faster and easier job for the boatman**

WHETHER YOUR BOAT has gone several seasons without painting, has excessive coats that require removing, or only needs another coat over last year's paint—proper sanding will make the work go faster, easier, and give a better finish.

Today's power sanders augment older methods of paint removal, and are also invaluable for fast and efficient dressing of bare wood. Hand sanding, or use of a vibrating or orbital sander, are preferred for neat finish work. But the hours of effort required to rough sand an entire hull by hand have been relieved by practical and efficient belt and disc sanders.

For rough sanding, to remove old paint on hull and areas without brightwork, 50-grit grade paper or cloth is recommended; 80-grit rough sanding is advised for varnished surfaces.

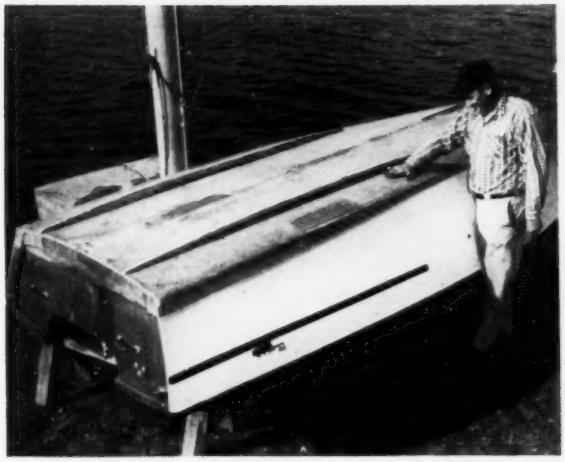
For intermediate sanding, in clean-up work, repairing scrapes and gouges, and preparing a surface for the prime coat, use 80-grit cloth or paper on the hull, 120-grit, C-weight paper on bright work, aluminum, and fiberglass.

Between-coat work may be done wet or dry with 220-grit, A-weight paper on topsides, brightwork, aluminum and fiberglass; 120-grit, C-weight on the bottom. Wet sanding, however, should not be done with an electrically powered tool. Be sure, as well, that your sander is properly grounded at all times to prevent chance of a shock.

For a super-fine finish, use 320-grit, A-weight paper on brightwork, and 400-grit, A-weight paper on aluminum and fiberglass.

Illustrations on the following pages were taken from a motion picture on sanding, produced by the Behr-Manning Co., Troy, N. Y.— ⚓

Windshield, spotlight, cleats, and all other items of deck hardware fittings, including rub rail and decorative stripping, are first removed before beginning the refinishing.



Examination of boat's bottom shows that even after season in fresh water, paint has chipped and surface roughened, requiring careful sanding, surfacing, and repainting.

Belt sander was chosen for this job. Markings on belt show it is X-weight (heavy) cloth, with aluminum oxide "electrostatically deposited" 50-grit grade for rough wood work.

Dust-collecting bag mounted on this belt sander permits cleaner work, plus more comfort for the user. Very important is complete freedom from dust when varnishing.

Belt sander works well on open areas like this deck. Use disc, orbital sander, or hand scraper and sanding block to remove paint in corners and along toe rail shown here.

Using belt sander, boatman can get down to under surface quickly, often essential for a good job. In this case, bare wood is needed for building up anti-fouling bottom surface.

SANDING continued on next page

While one man takes bottom down to bare wood with a belt sander, assistant smooths side panels with vibrating sander to assure an unblemished surface and "tooth" for new paint.

Gentle convex contours need be no problem. Power sanding is practical in almost all cases, either with disc, belt, orbital, or vibrating sander, according to work required.

Many coats of varnish make this a job for which fast cutting of belt sander is recommended. Working at shoulder height, in easy stages, cuts muscular fatigue.

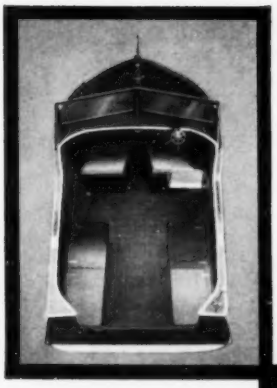
As work progresses up transom, man sanding will shift to an improvised platform, keeping belt sander at convenient shoulder height, and letting weight of the tool do the work.

Working with heavy sander in overhead position on bottom can be very tiring. Use smaller lighter sander or, if possible with smaller craft, turn it over, work with hull up.

After digs and scars have been puttied, sander is used to feather repaired sections in with good paint. Grit-50 cloth is also appropriate for this intermediate work.

SANDING continued on page 90

# Dunphy presents the WAYFARER Convertible



*. . . FOR FAIR WEATHER*
Top down . . . a roomy, high-performance runabout

*. . . FOR BLAZING SUN*
Top up . . . sun protection for ALL passengers — front and rear

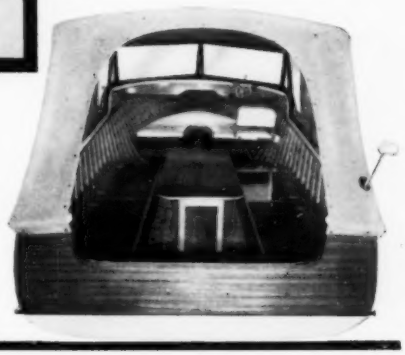
## 3 BOATS IN ONE!

- *OPEN RUNABOUT*
- *SUN-SHADED SPORTSTER*
- *FULLY-ENCLOSED CRUISER*

Here is undoubtedly the most versatile, most sensible family outboard ever built. This big, roomy, smooth-riding lapstrake is ready to go anywhere, anytime, for any kind of boating pleasure. The sensational new convertible top—exclusively designed by Dunphy—actually gives you more protection with far less weight—and cost—than conventional cabins or hard tops. Change from open runabout to fully-enclosed cruiser in less than 5 minutes! Enjoy this bold new concept of all-purpose, all-weather boating—made only by Dunphy, America's oldest builder of fine outboard boats.

*. . . FOR FOUL WEATHER*
Side curtains and stern window make it snug as a hardtop cruiser. Ideal for sleeping aboard, too.

*. . . FOR UTMOST COMFORT AND CONVENIENCE*
4 man-size bunks. Screens for ventilation. Table for cooking and eating. Marine head under front bunks (extra).



### SPECIFICATIONS FOR MODEL 1020 WAYFARER

| Centerline Length | Beam | Max. Depth | Motor Max. | List Price |
|---|---|---|---|---|
| 19'2" | 84" | 50" | 140 H.P. | $1595 F.O.B. |

### STANDARD EQUIPMENT

2 Forward Bunks with Fitted Cushions
Helmsman's Seat
Complete Steering Installation
Full Floor Carpet
Horn and Bow and Stern Lights (all wired to dash)
Mahogany Frame Windshield
Skylight Hatch
Deluxe Deck Hardware

### OPTIONAL EQUIPMENT

| | |
|---|---|
| Convertible Top (complete with side curtains, screens and stern window) Installed | $185.00 |
| Stern Bunks (with storage lockers beneath) per pair | 95.00 |
| Folding Table (fits between stern bunks or stows beneath deck) | 35.00 |
| Marine Toilet and Privacy Curtain (installed under front bunk) | 140.00 |
| Auxiliary Helmsman's Seat (port side) Installed | 39.50 |

*Write, Wire, or Phone:*

## Dunphy BOAT CORPORATION

## 532 BROAD ST., OSHKOSH, WISCONSIN

A 50-grit disc sander mounted on ordinary power drill is used on this hull to sand smaller rough surface areas. Rubber backup pad permits sanding without swirl marks.

Using disc sander, only inch or so of outer surface should be allowed to touch hull. This permits flexibility and prevents unnecessary gouging and scarring of wood surface.

Ordinary ¼-inch power drill, held properly in both hands like this, spins a 5-inch sanding disc in satisfactory manner. Notice how only outer edge of the disc is used.

Stiff fiber disc is usually used on metal surfaces, as with this centerboard plate. Additional abrasive action is permissible on metal, allowing man with sander to "bear down."

Standard vibrating sander is adequate where stock removal requirements are not excessive. Paper-back abrasives are usually used, 50-grit for rough work, 80 for intermediate.

Light weight vibrating sander is easy to use, finishing topsides and preparing surface for fresh coat of paint. Some non-orbital vibrating sanders are also used on varnish.

SANDING continued on page 92

REPEATING LAST SEASON'S SENSATION!

# a $13.50 copper bottom paint

*with exclusive RTP* for full season protection*

Last year, tens of thousands of happy boat owners learned a valuable lesson—that a bottom paint is *only* a bargain when it gives *enough* protection per dollar spent. Many of them had previously used low-priced bottom paints . . . only to find that they had to have their boat hauled out during the season to have the hull cleaned and repainted. They *needed* more protection. Others had been spending $20 per gallon or more to be sure of full-season protection. They needed more *reasonably priced protection.* Both groups found exactly what they needed . . . at just $13.50 per gallon . . . in Federal Tropical Red #11, formulated with RTP* (Reserve Toxic Power). They got full-season protection under even the most trying conditions of hot, dry weather—*the sort of protection you won't get from any other paint selling at under $20 per gallon!*

**SAVES YOU $50 PER SEASON ON GASOLINE COSTS**

This season, *you* gain the benefits which Tropical Red #11 and only Tropical Red #11 among medium-priced copper paints—gives! Full-season protection . . . a growth-free hull . . . a boat free to perform with all the speed, power, and efficient handling characteristics that were designed into it. By preventing growth-caused resistance on your hull, Tropical Red #11 reduces drag on your motor . . . adds to your cruising speed.

**NO COSTLY THINNERS NEEDED**

Federal Tropical Red #11 requires no costly or special thinners, . . . spreads smoothly and evenly over your hull without high spots or build-up . . . gives you maximum coverage per gallon. And . . . the materials in this great bottom paint act as a perfect unit for anti-fouling efficiency . . . retain their toxic effectiveness right down to the last ten-thousandth of an inch of film . . . leave your hull as clean as a hound's tooth at haul-out!

For the season-long** toxic power that gives your boat more speed and power be sure to specify Federal Tropical Red #11.

## FEDERAL TROPICAL RED #11

*ANTI-FOULING WITH *RESERVE TOXIC POWER*

Only $13.50 per gallon. Price may vary slightly in some sections of the country.

***For multi-season protection . . . Permadol Plastic Anti-Fouling gives you the greatest protection, dollar for dollar, of any bottom paint made!*

THE FEDERAL PAINT COMPANY, INC., 33 RECTOR ST., DEPT. 26, NEW YORK 6, N. Y. • SAN FRANCISCO • NEW ORLEANS

MAIL COUPON TODAY

The Federal Paint Company, Inc.
33 Rector St., Dept. 26, New York 6, N.Y.

Gentlemen:
Send me complete information on Federal Tropical Red #11, and the name of nearest dealer handling it.

Name_____

Address_____

City_____ Zone_____ State_____

On vertical surfaces and hard to reach areas, light weight vibrating sander is less tiring to use than a heavy belt sander. With fine paper, sander gives near hand finish.

Clean-up work is done with 120-grit, C-weight paper, for dry hand sanding. This is recommended practice for wood, aluminum and fiberglass hulls before painting or varnishing.

Between-coat work is done by wet sanding with 120-grit, waterproof paper for wooden boat bottoms, 220-grit, A-weight paper for topsides and for aluminum and fiberglass.

Finish sanding is done with 120-grit, C-weight paper, dry. A rubber hand block helps produce an even result. After dust settles, tack cloth will clean surface for varnish.

Surface should be absolutely clean, and air free of dust, before starting to varnish. Final finish coat is flowed on, as always, according to the manufacturer's instructions.

Hardware and fittings are replaced when finish coat has dried. Take care not to mar the surface with slippery tools. Careful job lengthens finishes' resistance to the weather.

*a Crosby Owner . . .*

## HARD AT WORK MAINTAINING HIS BOAT!

He threw out the paint brush . . . tossed away the sandpaper. A spring scrub-down and he's underway. His Crosby's showroom bright . . . ship-shape for a whole uninterrupted season of boating fun. His secret . . . the wonders of Crosby's care-free fiberglas construction . . . no seams to caulk . . . no leaks to plug . . . no dead or faded paint to freshen. His Crosby stays sparkling new through years of sunny days afloat. And so will yours!

**The versatile Fish-n-Ski . . . Big . . . Roomy . . . with speedy performance, unmatched beauty — Big water safety — the ideal boat for fishing, skiing or just family cruising. Yours at your Crosby Dealer. From $1059.00 Delivered.**

14′, 16′, 17′, 18′, 19′, and 22′ runabouts — day cruisers — a boat for you whatever you desire — and all fiberglas of course.

**AEROMARINE • GRABILL, INDIANA**

# FITTING OUT with Jim Emmett

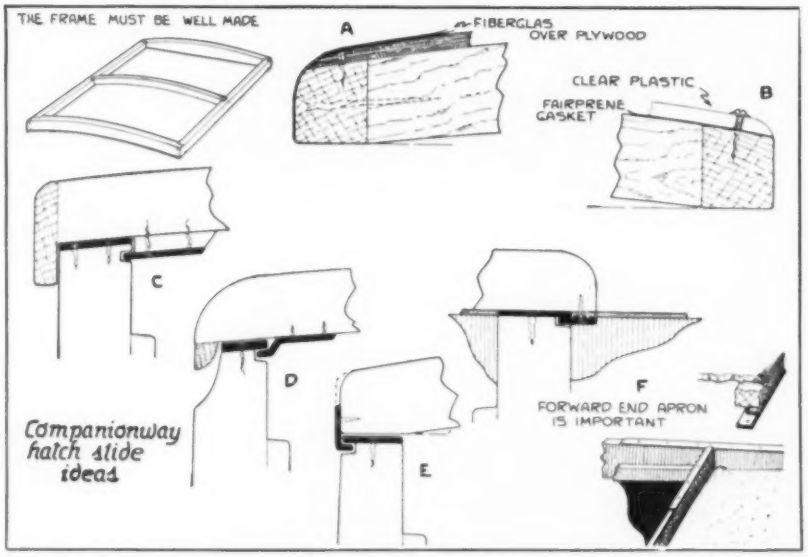
## COMPANIONWAY SLIDES

A LEAKING companionway slide is a nuisance. Almost as bad is one that's not proof against driven rain or spray. With it all, the hatch should slide back and forth properly, being easy to shove or pull yet remaining where left. Too, the whole thing—the slide and its coamings or runners—should look right, blending in with the house and being in keeping with the general appearance of the boat.

The frame of the slide must be strongly made. One or two center beams are advisable. Otherwise, if there is any appreciable camber, the curved top surface may become dished rather than remaining fair. The covering, which is likely to be plywood, either plain or fiberglassed, or clear plastic, such as Plexiglas, should be finished off to leave no angular edges or corners. The size will, of course, be set by the outside dimensions of the opening as enclosed by the side coamings and forward cross member. Too, it must allow for your way of guarding or sealing the latter. Also consider how you propose to have the hatch travel, what on, and how slide edges are water-guarded.

"C" shows a commonly used method. It's simple but effective although, because of the attached wood trim, it is not too good looking. The variation, "D" is much neater and should give "tight" edges. Notice that in both these examples the track is canted or slanted outboard. If not, as in "E," rain will travel down the metal runners and drip inside rather than run off and out. While strap brass or stainless is usually used for the runners or tracks, a friend has his very heavy hatch sliding on strips of $\frac{3}{16}$-inch very hard plastic sheeting. It works remarkably well. Type "E" does give a neat flush or streamlined effect, particularly if the L-shaped outside metal is let in flush (as indicated by the dotted lines) instead of being merely fastened on. Lengths of split tubing work out nicely for such side guards but a power hacksaw or bandsaw with a metal cutting blade is required and guides must be set up on its table to do a neat job of splitting a length of tubing heavy enough to be satisfactory.

The handling of the forward end of the hatch is important. The cross coaming can either carry the camber of the hatch top or be straight across with the forward end of the hatch or slide shaped accordingly. The rabbet, completed by attaching the metal trim, takes the shimmed-out trim of the hatch. Driven spray or rain can still find its way along the side tracks and under and in, but if the coamings are pitched forward and their cappings slanted outboard, such leakage should be negligible. Although the whole job is a seemingly small one in the building of a new boat or in the improving of an old one, to get it right takes much more time and careful workmanship than one might suppose.

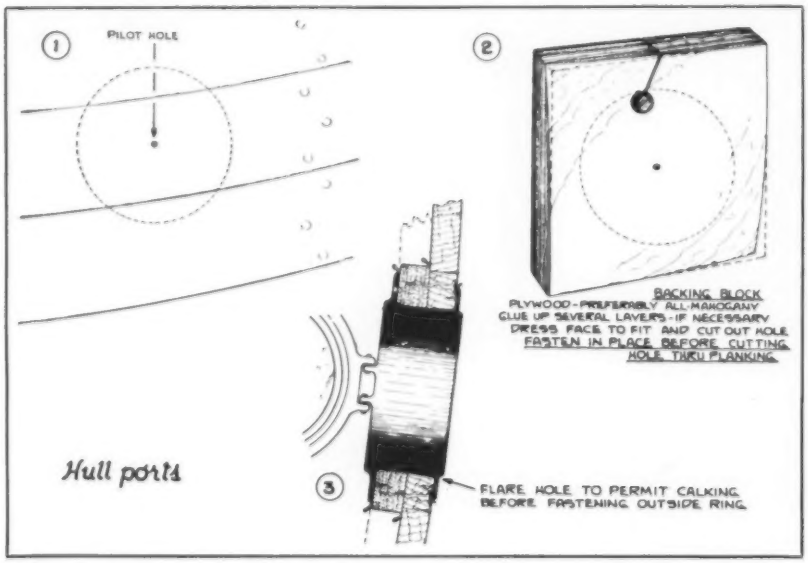



## PORTLIGHT INSTALLATION

"I WANT to put a couple of ports in my topsides forward but several of my friends claim they'll leak. How can I put them in so they'll stay tight?" I've had different letters of this sort, for a through-the-planking port that leaks can be a nuisance if not downright dangerous.

It's a simple matter to put ports in a cabin's sides since the surface is flat. Where they're to go through the hull planking, though, there's invariably some curvature involved. And, if they're to go up forward, it's generally a two-way one. This must be allowed for by using a stout backing block, dressing its touching face to hug the inside of the planking, when its inner flat one will permit securing the port properly and without anything being distorted. Equally important, the

EMMETT continued on page 96


1
PILOT HOLE
2
BACKING BLOCK
PLYWOOD - PREFERABLY ALL-MAHOGANY
GLUE UP SEVERAL LAYERS - IF NECESSARY
DRESS FACE TO FIT AND CUT OUT HOLE
FASTEN IN PLACE BEFORE CUTTING HOLE THRU PLANKING
3
FLARE HOLE TO PERMIT CALKING BEFORE FASTENING OUTSIDE RING
Hull ports

# IT'S NEW!

## POWER STEERING FOR YOUR OUTBOARD

*from anywhere in your boat—*

## ELECTRO PILOT

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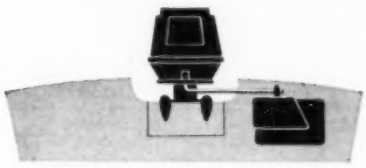

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EMMETT continued

backing block must be heavy enough, despite the hole cut in it, to hold the cut ends of the planks from springing out. For this reason do no serious cutting of the planking until you've screw fastened it to the block all around just beyond the perimeter of what will be the hole. Here I've purposely shown the proposed hole (No. 1) as cutting one plank entirely away. But try to have your location such as to leave the edges of the cut planks intact. In any case, the planking is under much more strain than you'd suppose and unless secured before cutting is likely to either split or to spring out to defy your efforts to draw the ends or edges back fair.

Commence by deciding on and marking your location on the outside planking (both sides alike for the usual pair of ports forward, of course). Bore a quarter-inch pilot hole through the planking as the hole's center. Go inside and measure out from it to get the size and shape for a block that will fit between the frames butt block fashion. Make a cardboard template and hold it in place inside while someone outside punches through the hole's location. Finally, before removing the template, mark its outline on the inside planking.

The block itself should be approximately the thickness of the frames in case you want to carry the hull ceiling over it to outline the port. Regular wood won't do, being sure to check or break from cutting the hole. Try for scraps of heavy plywood, preferably all mahogany, gluing up several layers, if necessary, to make the thickness wanted. Being sure which is the touching face of the block dress it to shape to hug the inside of the planking. Then saw out your hole having it a snug fit for the port's spigot. The sketch (No. 2) shows an easy way of doing this on a bandsaw. Bore a 1-inch hole inside the circle and saw a slanting hole into it. Work your saw's blade through this and with its bed flat saw out the circle. Later, if you wish, a piece of veneer can be glued within the slanted cut.

Bed the block in place inside the planking, being sure it is within its outline marks. Hold it there until someone outside has put in several of the holding screws. Then do all outside fastening. The hole can now be safely cut. When you finally have it so that the port will shove completely through with its flange evenly on the block mark outside for doing enough flaring of the outside edges to permit calking. Do the latter after the port has been fastened in place, of course, before finally bedding and fastening the outside finishing ring.

Naturally, the ports used should have a long enough spigot to suit the job, leaving preferably a quarter-inch projecting beyond the ring. If the job requires an in-between size spigot one should naturally buy a longer than necessary size and neatly hacksaw off the excess before commencing the actual work.

## ROLLER PAINTING

WITH MORE and more yards, and owners too, using rollers for painting boat bottoms and topsides, much has been learned about this method. Using a roller speeds up the work, and for certain areas, say the bottom of a shoal-draft craft, a roller is less messy than a brush. Also, on some jobs, less paint will be used. However the main point is that where rollers are used intelligently—on areas suitable for this way of painting—a satisfactory finish job can be had.

For topsides, I notice that many yards prefer to have one man lay the paint on with a roller while another follows along with a brush to work the paint out evenly and do any cutting in. A good quality brush but with rather short and reasonably stiff bristles is preferred.

For the bottom a roller will suffice, except for the cutting in. However, one must watch, particularly when using an antifouling rather than old-

EMMETT continued on page 98


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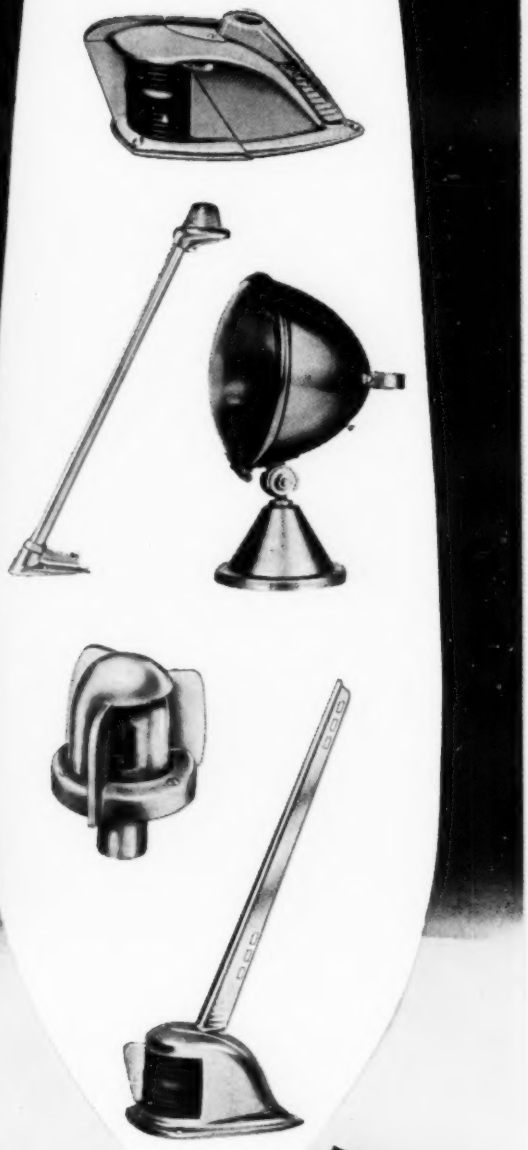

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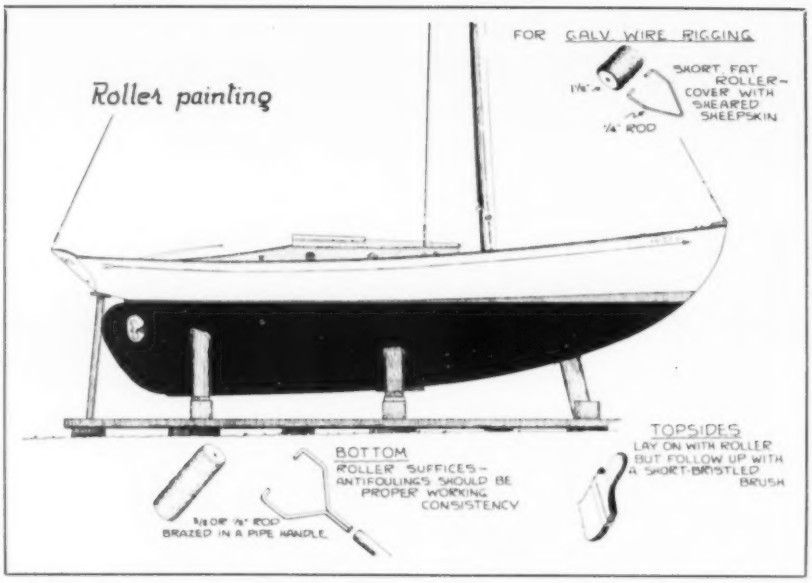
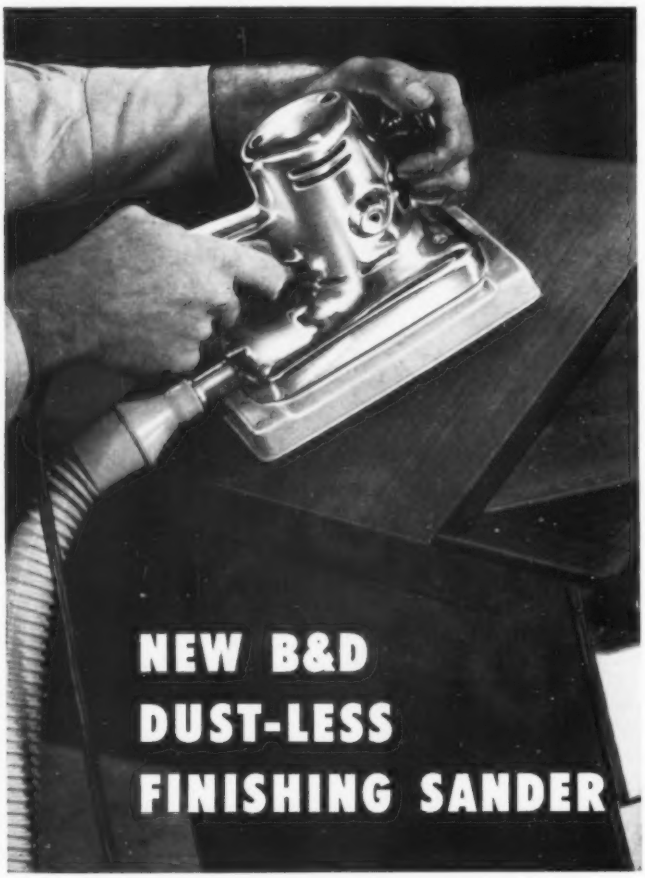

Roller painting
FOR GALV. WIRE RIGGING
SHORT FAT ROLLER-COVER WITH SHEARED SHEEPSKIN
1/4" ROD
BOTTOM
ROLLER SUFFICES-ANTIFOULINGS SHOULD BE PROPER WORKING CONSISTENCY
BRAZED IN A PIPE HANDLE
TOPSIDES
LAY ON WITH ROLLER BUT FOLLOW UP WITH A SHORT-BRISTLED BRUSH

time copper, that the paint doesn't merely bridge seam checks or indentations and over the fillings of low-sunk fastenings. If that happens, the thin film will fail at such points first.

For either type paint, consistency and working qualities are important. Some bottom paints go on too thick—tend to build up the bottom coating too quickly. Some others may be sticky enough to tend to cling to the roller rather than the surface. Usually the paint can be made to work right by using the thinner specified in the can directions, particularly where some special or matching additive is recommended. One mustn't forget that the weather, notably the temperature and the sun's direct rays, will have their effect. On a hot day paint tends to set up quickly. On a cold one it may be too slow in drying or tend to go on too thickly. Much depends on the particular paint being used, but you'll find that most modern paint lines include thinners and additives meant for these opposite conditions. Turps or an ordinary thinner has the effect of further accelerating the setting up of paint. Accordingly, use such a thinner when working in cool weather. For warm weather or ordinary summer painting, though, one wants a special additive that will have the opposite effect—to slow up the drying so that the paint can be rolled on more evenly without marks showing. Indeed, such reducing is a must if one is following up with a brush. All considered, it's even more important in roller painting than in using a brush to know your paint and how to handle it.

Whether or not you're a roller fan there's no denying that a short home-made roller is a big improvement over a brush, or a sponge or rag, for putting aluminum paint or a rust preventive coating on galvanized wire rigging. Sheepskin with all but a half-inch of the wool clipped off, tacked on as a covering, holds the paint well. Naturally one wants a little perforated tray in his bucket along with the paint so that the roller can be loaded properly. Then two passes made up and down the wire as you lower yourself from aloft will leave it evenly covered, and your deck clean.

EMMETT continued on page 100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## CHART TABLE

JACK MAYBANKS of Bangor, Maine gives a rather odd but still a sensible reason for installing the chart table shown. As he explains, the side berths on his 30-foot cutter are full length, actually 6′ 6″ long. His wife, though, is a 5′ 2″ gal, meaning that he had a good foot of space, and right in the beamiest part of the boat, that could be used to better advantage. This is frequently the case but, as Jack emphasizes, anything added to utilize the space should be made removable, anticipating eventual resale of the boat to someone who could object to the shortened berth.

Here the box-like unit is held by a few screws into the adjoining bulkhead. Its main features are the top book well, the storage compartment beneath, and the hinged front or working surface which can be held locked open at a convenient working height or angle. Sheet cork, used to cover the latter, worked out well, Jack reports, taking the thumbscrews nicely that hold the chart being used. His original intention was to leave the box open to utilize the space for stowing charts, folded twice, on edge. However, his old way of storing them folded in plastic envelopes kept under the berth cushions, has always worked out fine, and he did need more space for books. As it is, there's room in the well for other books in addition to his Coast Pilots, guides, etc., pertaining to navigation or piloting.

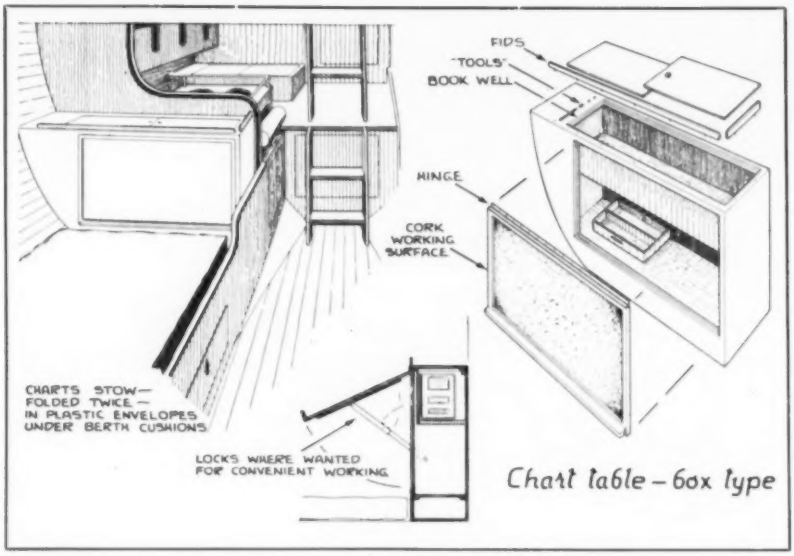
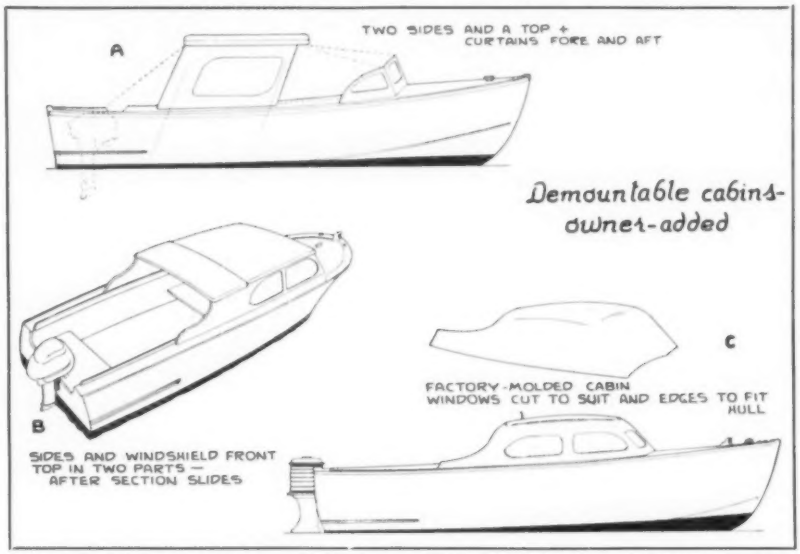


Chart table – box type

## DEMOUNTABLE CABINS

IT USED TO BE that the home building of shelters or cabins for outboard boats was taboo—it was so easy to make the small, light boat dangerously topheavy. Now though, with the trend to bigger and better outboards, one comes across many such boats improved in this way by their owners. True, one must still keep the ones, preferably with the cockpit enclosed by a low coaming. But that's a feature often added by owners of open boats, even where no shelter is proposed. Where a cabin is added, my preference is for a demountable type. Yet I notice that in many cases such a shelter is found to be so handy that it is eventually left on, possibly being more firmly secured.


A
TWO SIDES AND A TOP + CURTAINS FORE AND AFT
B
SIDES AND WINDSHIELD FRONT TOP IN TWO PARTS — AFTER SECTION SLIDES
C
FACTORY-MOLDED CABIN WINDOWS CUT TO SUIT AND EDGES TO FIT HULL
Demountable cabins-owner-added

size and weight of such a superstructure down. Also, in order not to be an eyesore, the shelter must be of approved design, possibly resulting from copying what some manufacturer has done to provide this feature on a boat of the same general type and size as yours.

The main preliminary requirement is a forward deck and narrow side

Type "A," seen recently on an 18-foot kit-built boat, consists of a pair of sides and a bolt-on top. The shape of the former avoids the box-like look of rectangular sides of such height, and interferes less with the driver's position forward. Where the shelter is to be a permanent one the sides could likely be bolted to the coamings, then the top secured. However, it would be sensible to have braces inside the four corners to tie in the parts. On the boat in question, where the shelter is removable, the sides are held by a pair of pipes, each side going at a slant through holders inside the boat sides and the cockpit coaming, with their lower ends held by floor sockets. With the sides in place the roof section is forced over them and secured by bolts and wing nuts. Actually, the roof is four inches narrower than the width of the structure at the deck. This inward slant given the sides makes them look right to the eye and the bit of strain put on them helps in holding all securely. On another boat I saw a somewhat similar shelter but made as a unit and mounted on tracks attached to the deck so it could be slid back and forth. Naturally, such tracks must be parallel to one another, requiring that the boat have rather straight sides and a wide stern.

"B" shows a more or less conventional shelter of the sort on which it is hard to go wrong. The low sides and the front or windshield section merely bolt to the cockpit coamings, being stiffened by bolting the forward section of the roof in place. The after section of the top is made to slide back and forth, companionway hatch fashion, making the low cabin more open.

"C" shows a stock top or cabin which the owner was able to secure as a blank molded plywood unit. He had to shape the sides to hug the decks of his boat and do some stiffening in addition to cutting the window openings and closing them in with Plexiglas. Certainly the cabin appears a part of the boat and not an afterthought.

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Woolsey Paint photo

Any member of the family should be able to do an excellent painting job by following directions carefully. Preparations are important: screw holes should be filled, as shown; splinters, gouges, roughness leveled and sanded; loose paint removed; and hull washed down if you are near the sea and salt could have worked into seams, checks. Patience and care at this stage pay off in the finished results.

# The Right Way to Paint

**A fine finish for your boat can be easy—and even fun—with the special marine paints available today. Proper methods of application, as outlined here, deserve special study by the skipper—or his first mate**

By R. J. Eckart

*Marine paint research and development authority*

WHY PAINT and varnish your boat? The answer is twofold: beauty and protection. Of the two, protection is most important. Varnish and topside interior paints give protection against dry rot; anti-fouling bottom paint gives protection against harmful marine growths and organisms.

Painting is not a difficult chore. The best advice is not to rush things; take it easy and consider each step that must be done from removing old paint through the final coat of new paint. Plan your work so that each step can be completed properly before the next is begun. Allow enough time to take into account vagaries of the weather that can delay the job.

Any surface that is to be painted must be carefully prepared beforehand. This means it must be clean, free of grease, dirt, salt (if you're near the sea), roughness and moisture. Check all seams and screw holes. Get rid of any burrs and splinters. This is done by careful sanding, as described elsewhere in this issue.

If your boat is used primarily in salt water, don't depend on sanding only. Accompany your sanding job with a thorough washing to get salt out of tiny pits, seams and checks. Failure to do this has been the cause of many finish faults. If an old surface is in good shape, it may not need more than a good sanding or cleaning. Remember that paints are like people in some families—they like to stay together with their own kind. So try to use a paint as close as possible to the old surface finish. If you can't do this, remove the old paint completely. It can be sanded off, blistered off with heat from an infra-red lamp in a reflector, softened with chemical removers, or burned off with a blowtorch. A blowtorch is the fastest way, but be sure you know how to use it.

With the surface properly prepared, you're ready to paint. But first consider the weather if you're going to work outdoors (or even indoors). What you want—if you can order it from the weather bureau—is dry, settled weather. Temperature, indoors or out, should be between 40 and 80 degrees. Check humidity, too. We have found that for best results, humidity should be less than 65 per cent. If temperature is expected to fall to any extent during the night, end your painting early in the day. Dew forming before paint is dry can ruin the finish. This is especially true of white paint. It may feel dry to the touch, but that doesn't necessarily mean it's dry underneath.

Wind, sun and bugs must all be considered when working outdoors. Wind can blow dirt, soot and insects onto a freshly-painted surface, so provide suitable shelter from the wind. You don't want to risk working in direct sunlight if it is too hot. If the day is a real scorcher, you'll probably wind up with paint blisters and uneven drying. There is no sure protection against bugs, but spraying the area with an insecticide can help.

As for paints, keep in mind that they have definite chemical differences. Lead is used mainly in undercoats, primers,

Woolsey Paint photos

A smooth paint job must have a smoothly sanded base, with just enough roughness for a good tooth. Use tack rag for best removal of dust before painting.

Long even strokes will give a sleek finish. Be sure white paint for topsides is marine grade; this will contain titanium oxides which will resist discoloring when in water.

sealers, putties and cements. Expose these to air containing sulphide gases and you'll find some discoloring. Finish paints contain titanium and zinc pigments, or synthetics. These are impervious to the sulphide gases, and, of course, they protect the undercoats.

With the surface prepared, the weather checked and the area sprayed against insects, you're ready to paint. First, here's some advice I never tire of giving: pay attention to directions on the paint can. Considerable research and development goes into marine paint products, and the results are the instructions on our paint cans.

Another fact we have discovered in the marine paint field is that do-it-yourselfers have a tendency to either underpaint or overpaint. Underpainting will not give adequate protection, and will certainly not show off its best color characteristics. And piling up too much paint hastens the day when the entire coat must be removed.

Paint should be vigorously shaken before actual application. If you can't do it properly, have your marine supply dealer do it. He has a machine that does the job perfectly and quickly. But once it's shaken, don't let it stand more than 48 hours before using it. Shaking is done so there will be an even distribution of pigment in the liquid vehicle.

Don't paint from the original can. Use a clean work can and pour enough in it so you'll have enough for continuous application for the area you are painting. After you draw off the amount you'll need, put the lid back on the original container to keep the remaining paint free of contamination by dirt. If you find you drew off more paint than you needed, you should seal the paint left in the working can. If you have no lid for this, it would be better to transfer the paint to a can with an air tight cover.

On raw wood, apply a primer or sealer first. Take care to work it into all seams. On a carvel planked hull, seam compound is applied after the primer has dried. Trowel cement should be used to go over any mars, dents or depressions. Sand the surface when dry, and apply a second sealer coat. Sand this thoroughly when dry, and rub down with a tack rag. Sanding is done after every coat, with a fine garnet paper used before the final finish coat.

If the surface is not raw wood, the number of finish coats needed depends on the previous finish. If it is in poor condition, a single coat would have to be too heavy, and two or more coats are preferable. If the surface appears good, one coat may do the trick. Wash the surface down and follow up with a fairly fine sandpaper. Check carefully for defects revealed, and fill these. Spot paint places where old paint has worn thin, and finally apply the finish coat.

In handling paints, try to avoid the necessity of using thinner. If thinning does become necessary, do not use Linseed oil. Linseed oil is not compatible with the synthetic paints now supplied by many of the marine paint manufacturers. Thinning generally reduces the quality of the surface film, and also weakens the paint. If paint has a tendency to set up or dry too fast, use a few drops of brushing liquid, a special product developed to overcome this problem. In case you are concerned about drying

PAINT continued on next page

Teamwork can speed job when the weather is favorable: warm, but not too humid. When wood is given bright-work varnish finish as shown on transom at left, varnish must be handled carefully and brush applied gently to flow on varnish without causing bubbles to form. Do not brush out varnish, or apply so heavily that sags may occur. A number of coats give best protection.

Final chore is application of bottom paint. This must be very carefully done since surface will influence speed of boat, and protection from marine growth when, as at the right, anti-fouling paint is applied. Study directions very carefully to determine if boat should be launched while bottom paint is still wet. Paints contain toxic particles to repel barnacles and must be handled just as directed.

Woolsey Paint photos

## PAINT continued

qualities, modern paints and varnishes have them built-in. Drying additives are not needed.

Before applying finish coats, make a final check to be sure that all holes, dents, depressions and mars are accounted for and filled. Paint with a large, clean brush, with quick, smooth strokes. Watch for dribbling or gliding streaks. These come from having the brush too full. Go over these before the paint sets up. Again, be sure to sand between each coat. A tack rag is ideal for dusting.

The most delicate job is applying the anti-fouling bottom paint that repels marine growth. Bottom paints require special handling because they contain toxic agents. If you pay close attention to directions on the label, you can't go wrong. Most bottom paints are applied directly over raw wood. Old paint may flake off and carry the new paint right with it. Get right down to the bare wood and make sure the anti-fouling paint adheres properly. Use a small brush, one with short, stiff bristles. Such a brush reduces the tendency to drag and pile up.

No matter what some eccentric in the boat yard tells you, don't add Paris Green or DDT or any other low-cost item to your anti-fouling paint. These won't help, and might reduce the potency of the paints.

As soon as the bottom is painted, and *while it is still wet*, launch your boat, unless the paint you are using is of a special type which can stand drying out before launching. If the bottom is dry before launching, air will alter the characteristics of most anti-fouling paint. Don't economize on anti-fouling paint. Get the best; it will last the longest.

When it comes to varnishing, *do not shake the can.* Shaking causes bubbles, and bubbles leave a mottled surface. Use a small working supply of varnish; pour it slowly from its original container into a varnish cup. This cup should have a mouth just large enough to allow entry of the brush, and it should have a lip or bar for draining the brush.

You may find it necessary to thin varnish. This happens rarely, but when it does, do it the safe way. Use only a small amount of thinner and introduce it into the varnish very slowly. Stir in an even, soft motion and always in the same direction.

Direction counts also in applying varnish. Use as little brush action as possible. Try to flow the varnish on the surface. If you are stroking from left to right, for example, do not reverse stroke over the same strip of varnish.

For example, let's varnish a hatchcover. Start at the lower right hand corner (the corner closest to you). With one brushful of varnish, make a single flowing stroke halfway across. Begin the next stroke at the lower left hand corner and bring the varnish to the end of the first stroke. This is not reversing a single stroke, but taking two separate strokes in opposite directions. Now, with more varnish in your brush, repeat the same two movements right alongside the first strip of varnish. Drain the brush and lightly run it over the area between the two strips, picking up the excess from where one strip overlapped the other. Repeat for the rest of the hatch.

Using reasonable care, you should have no trouble producing a professional paint job. Follow directions, set your own pace, and stick to it.—R. J. ECKART

# MAKE A GOOD BOAT BETTER WITH POWER by GRAYMARINE

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## 3 NEW V-8's: 135 HP • NEW 170 HP • 225 HP

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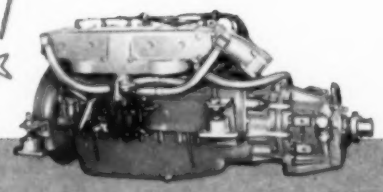
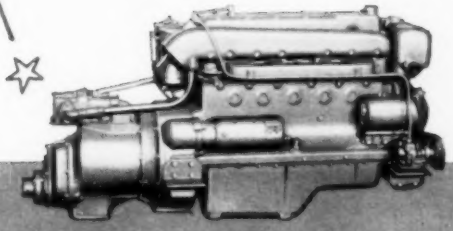


- Gray's nine 4-cylinder engines cover a wide range of requirements, and are rated at 25, 31, 45, 60, 63, 70, 75, 85 and 90 hp.

  Gray's 109 hp Model 109 (shown) is popular with workboat operators, and one of ten fast, smooth 6-cylinder engines rated at 109, 116, 118, 120, 136, 150, 165, 175, 185 and 200 hp.

## 6 CUSHIONED-POWER DIESELS



- Gray's 130 hp Six-D427 shown, use-proved for years in Government service, is representative of the Gray Diesel line—25, 30, 60, 130, 150 hp, and now the new 190 hp Six-D802. For those who want the benefits of Diesel power, Gray's four-cycle design is an extra advantage, resulting in simpler maintenance and smoother, quieter operation.

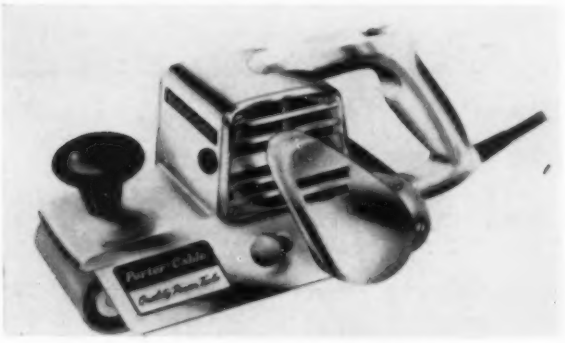
*Exhibited at All Major Boat Shows—*
*Used in the Leading Stock Boats!*

**GRAYMARINE**

GRAY MARINE MOTOR COMPANY, DETROIT 7, MICHIGAN • SUBSIDIARY OF CONTINENTAL MOTORS CORPORATION

A good electric drill is the handiest tool in a boatman's kit. Choose it with care, pick a heavy-duty model and don't look for bargains, they won't pay off.

A new tool which combines the wood-cutting features of a rasp and the accuracy of a sharp, professionally wielded plane is the Surform made by Stanley Tool Co.




Belt sanders are best when sanding with the grain for bright varnish finishes and may often be rented from your boatyard. Many varieties of paper are available.

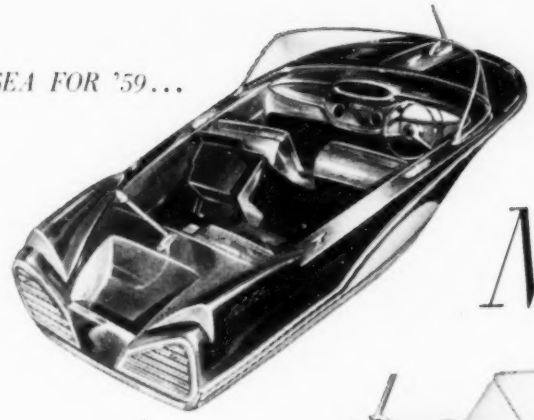
# TOOLS FOR THE BOATMAN

A basic kit of tools to be left aboard at all times may be made of tempered bronze to prevent rusting. Bronze tools are non-sparking and reduce fire hazard.

THE RIGHT TOOL for the right job can save the boatowner time and expense when fitting out. Tying up a marine railway or farming out work you can do yourself will be reflected in the size of your boatyard bill. Use as many power tools as you can when preparing painting surfaces or making repairs; electricity is a cheap substitute for hours of muscle power.

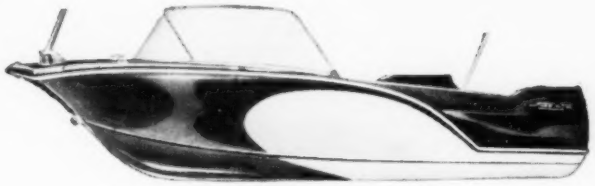
The power sander is a blessing that pays off in more days afloat and quality paint jobs. Use an orbital sander for roughing up old paint and smoothing seams before the final finish coat. When smoothing up the bottom, or to remove caked anti-fouling paint, a disc sander with a rough, open coat paper will knock long hours off your work time. An electric drill is a *must* for every boat owner. Remember, with all the accessories available, your drill will do more than drill holes. It can be a portable saw, a power sander, a buffing machine for polishing brass castings, and the handiest tool in your kit. Because of the frequent use a boatowner may require of it, a drill should be chosen with care. Pick a heavy-duty one with the heavier windings, better insulation, and superior service that professional use demands. Look over amperage ratings, casting weights, and rpm outputs before you buy. It is sometimes not necessary to buy power tools outright. Check with your boatyard or local hardware store for rental fees and the types of machinery available to make fitting-out lighter work. The fees are usually reasonable, and the saving great.

*FROM LAKE 'N SEA FOR '59...*



*Two boats in one! Fully equipped 14-ft. Caribbean Custom Runabout OR Sports Utility with removable stern seat. Only $1095 complete!*

# *New models!*



# *New styling!*

*New 15-ft. Biscayne Runabout with windshield, steering wheel, seat cushions, lights, fittings —all standard! Own it now for only $965.*

# *New features!*

*Beautiful 16-ft. Arrowhead Custom Runabout with big paneled cockpit, twin fold-out jump seats, complete equipment for only $1395. Available as Custom Landau with smart fiberglass top —$1495. Send for full data on all '59 Lake 'n Sea models today!*

*(Prices quoted f.o.b. factory. Prices, specifications and equipment subject to change without notice.)*

TAKE YOUR PICK from thirteen brand-new, beautifully styled 1959 Parsons Lake 'n Sea models: Fishing and Sports Utilities, Runabouts, Landaus, and a two-sleeper Cruiser . . . all the way from 12 through 18 feet in length . . . *priced as low as $295!*

Every model is built of maintenance-free Aircraft-Quality Fiberglass. Nearly every model comes to you completely equipped with windshield, steering wheel and controls, remote power controls, seat cushions, and deck fittings. And every model has its own special features that add to your boating pleasure.

Parsons Corporation, world's largest producer of helicopter rotor blades, has been a pioneering specialist in fiberglass structures of aircraft quality for over a decade. Every bit of its experience in precision moulding and quality control has been applied to this spectacular new Lake 'n Sea line. The result: a boat you can really enjoy—a boat you can really *trust!*

If you're ready for a *better* boat with superb all-around performance, look no further. Let Lake 'n Sea introduce you to luxury boating in 1959 and for years to come! Choose your new Lake 'n Sea *now!*

Parsons Lake 'n Sea®

PARSONS CORPORATION • LAKE 'N SEA DIVISION • TRAVERSE CITY, MICHIGAN

**SEND FOR FREE 16-PAGE BROCHURE TODAY!**

Write name and address in margin below, mail to *Parsons Corporation, Lake 'n Sea Division, Traverse City, Michigan.*

▼ Name ▼ Address ▼ City ▼ Zone ▼ State

# MARINE TOOL BUYERS' GUIDE

• AMPCO METAL, INC.
1745 S. 38 ST.
MILWAUKEE 46, WIS.

**MARINE TOOL KIT**

Rust and corrosion resistant, salt, acid, and water resistant

tools of nonferrous alloys. Non-sparking, anti-magnetic; may be used near explosive gases, liquids, or vapors. Available in 8 varieties from $5.90, complete in moisture-proof plastic containers. Pictured is "Tuna" kit, price, $38.50. Deluxe cases also available from $75.

• ARROW METAL PRODS. CO.
421 W. 203 ST.
NEW YORK 34, N. Y.

**ARCO ANGLE-BUFFER**

Slips into any electric drill chuck, swivels at any angle. Doubles drill speed for sanding, reduces drill speed for buffing. Price, including attachments and instructions, $6.50.

• BERGMAN TOOL MFG. CO., INC.
1573 NIAGARA ST., BUFFALO 13, N. Y.

**BLUE BIRD BATTERY POST CLEANER**

A battery terminal clamp and post cleaning tool. Pocket-sized. Two stiff metal brushes which are enclosed in a metal top and housed in a steel case. Price, $2.15.

• BLACK & DECKER MFG. CO.
TOWSON 4, MD.

**SCRU-DRILL**

Power drill with ¾" chuck converts to screwdriver with twist of collar above chuck. Spindle clutch idles until pressure is applied and disengages when screw is "home". Also available: complete line of standard power tools.

• CASTLE HILL PRODS., INC.
8 NEWPORT AVE., NEWPORT, R. I.

**STAINLESS STEEL TOOLS**

Stainless steel hand tools, pliers, screwdrivers, etc.

• CHARLES MACHINE CO.
P.O. BOX 63
SPRINGFIELD, N. J.

**CONTOUR SCRIBER**

Metal construction contour scriber is used to mark linoleum, etc., for cutting.

• CUMMINS PORTABLE TOOLS
5055 N. LYDELL AVE.
MILWAUKEE 17, WIS.

**POWER TOOLS**

Portable electric tools.

• DELTA POWER TOOL DIV. ROCKWELL MFG. CO.
400 N. LEXINGTON AVE.
PITTSBURGH 8, PA.

**HOMECRAFT TOOLS**

Delta "Homecraft" power tools, including the "Delta Shop", Delta "900" radial saw, and Delta "9" tilting arbor circular saw.

• DREMEL MFG. CO.
RACINE, WISC.

**SANDERS**

Electric sanders, straight line action. Price, $14.85, up.

• ELECTRO ENG. PROD. CO., INC.
609 W. LAKE ST.
CHICAGO 6, ILL.

**POWER TOOLS**

Electro power tools including ¼" drill, ⅜" drill, 7" power saw, power jig and saber saw, power sander and polisher, Airless paint gun, power attachments. Also "Duwell" power tools: ¼" drill, ⅜" drill, 7" power saw, power jig and saber saw, power sander and polisher, paint gun, power attachments.

• W. L. FULLER
1165 WARWICK AVE.
WARWICK, R. I.

**PLUG CUTTERS**

Plug cutters, countersinks, counterbores and drills.

• FUNCTIONAL PRODS., INC.
1460 E. RIVER RD.
SOUTH AURORA, ILL.

**"TUNCO" TOOLS**

Line includes hand sander, wood rasp or file, contour rasp or file, abrasive saw and abrasive saw and sanding discs, all incorporating use of crushed, sintered tungsten carbide. Saws can be used with either power hand tools or on conventional table stands.

• GARDNER-DENVER CO.
QUINCY, ILL.

**AIR TOOLS**

Keller air tools designed for drilling or assembly operations in close quarters includes angle drills, nut setters and screw drivers. Tools range in weight from 2¼ to 3⅜ lbs., feature sturdy construction, ball bearings, Zerol bevel gears, splined drives. Tools available in five sizes with speeds ranging from 3200 rpm to 450 rpm.

• HOLT, KNOWLES & CO.
631 S.W. 71ST AVE., MIAMI, FLA.

**MARINE TOOLS**

Stainless steel fids, $3.95 to $4.95. Serving tool, adjustable tension, $4.95 to $13.50.

• JIFFY PRODUCTS CO.
31 S. MICHIGAN AVE.
PASADENA, CALIF.

**JIFFY FILE**

Used for refinishing. Uses all grades of abrasive. Designed for fiberglass, plastic, wood, aluminum, lead, steel. Price, $3.98.

• MARTINDALE ELECTRIC CO.
BOX 617, EDGEWATER BRANCH
CLEVELAND, OHIO

**SEAM ROUTER**

Electric seam router, with wrenches, five guide wheels. Price, $120.

• MABSCO PRODUCTS
HOLLIS, N. Y.

**MABSCO SEAM CLEANING TOOL**

Adjustable caulking tool has depth control regulator and has two reefing edges, 1/16" and ⅛", to fit seams of varying widths for cleaning out old filler and putting in cotton caulking. Tool has screw-on handle.

MFR., Mabsco Products, Hollis, N. Y.

• MILLERS FALLS CO.
GREENFIELD, MASS.

**HAND SANDERS**

Features a tungsten carbide abrasive. In medium and fine grit models. For use on wood, plastics, etc. The surface won't wrinkle, shred, or tear, and resists clogging. Price 99¢ each.

**DRIVER-DRILL**

A high-torque screwdriver that converts to ⅜" drill. Available in saw grip or pistol grip. Has reversing switch, 2-amp. motor. Price, $39.95. Drill chuck, $6.95.

• MITERITE, INC.
CAMPBELL, CALIF.

**MITERITE CALCULATOR**

Automatically calculates correct angle for complex construction work. Accurate to ¼ degree of arc, makes cutting of compound angle a simple operation with table or radial arm power saw.

• PENENS TOOL CORP.
SCHILLER PARK, ILL.

**TOOL KITS**

Challenger Imperial outboard tool kit. 36 tools in waterproof, roll-up pouch, plus motor manual instruction booklet. Price, $9.98.

• PORTABLE ELECTRIC TOOLS, INC.
320 W. 83rd ST.
CHICAGO 20, ILL.

**SHOPMATE TOOLS**

Shopmate power tools: 7" saw, two-speed drill, ½" drill, ¼" drills, drill kits, oscillating sander, 7" disc sander, 9" disc sander, 6¾" saws.

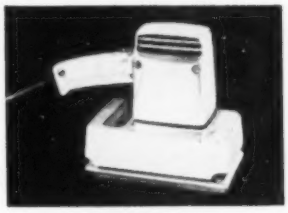
• PORTER-CABLE MACHINE CO.
700 MARCELLUS ST.
SYRACUSE 4, N. Y.

**ELECTRIC PAINT REMOVER**

Portable electric tool can be used for paint removal, floor edging, boat and deck sanding and concrete surfacing, and is effective on wood, plastic and composition materials. Tool has tungsten carbide discs and is powered by a heavy duty 3.5 amp Universal motor. Features include sealed precision ball bearings and helical gear drive. Price, $69.95.

**MODEL 165 ABRASIVE-BELT SANDER**

Portable abrasive-belt sander has Universal motor with self-lubricating ball bearings and can sand 600 surface-feet-per-minute. Features include interchangeable belts for coarse to fine sanding, and woodworking and metalworking abrasives. Drive mechanism requires no lubrication.



**MODEL 145 FINISHING SANDER**

Finishing sander uses orbital motion and features universal motor; covers large areas for coarse, medium and fine finishing and can be used close to corners and in other cramped spaces. Housing is of die-cast, polished aluminum, with control switch on top of the handle.

• RED DEVIL TOOLS
BOX 355, UNION, N. J.

**STEEL SANDPAPER**

9"-wide Dragon-Skin steel sandpaper can be used on hard and soft woods, plaster, plastics and soft metals. New width, designed especially for industrial users, is now available in rolls up to 1600' in length.

TOOLS continued on next page

• REMINGTON ARMS CO., INC.
939 BARNUM AVE.
BRIDGEPORT 2, CONN.

**POWER TOOLS**

Complete line of gasoline, electric and air powered tools, including chain saws, drills, screwdrivers, flexible shaft equipment, grinders, sanders and saws.

• SKIL CORP.
5033 ELSTON AVE.
CHICAGO 30, ILL.

**MODEL 569 ⅜" POWER DRILL**

Drill has 2½ amp motor to produce 1,000 rpm free speed, with ⅜" capacity in steel, ¾" capacity in wood. Drill weighs 4¼ lbs., and features geared chuck, spur gears, removable side handle, self-adjusting brushes and aluminum housing. Price, $36.95.

**MODEL 405 BELT SANDER**

Belt sander has high and low

speeds, for rough and fine jobs, and 4" sanding belt with simple belt-changing device. Unit sands flush to upright surfaces. Price, $89.50.

• STANLEY TOOLS
NEW BRITAIN, CONNECTICUT

**SURFORM TOOLS**

A new line of hand tools with many applications for marine use in boatbuilding have been introduced under the trade

name "Surform." A combination of wood rasp, and plane, these tools are composed of many teeth, which cut on the draw stroke, and remove a set amount of stock, eliminating the danger of cutting too deeply. The teeth are set so that shavings pass right through the openings, leaving the tools free from clogging and chips. Surform tools are made in several different shapes, straight, convex, and half-round. The tools are useful in forming white oak keel and stem sections and finishing the raw edges of marine plywood. They may be used on many diverse material, such as woods, fiberglass, plastics, lead, and any soft metal. Price $3.69 from local Stanley dealers. A complete line of both power and hand tools are also available from the manufacturer.

• THOR POWER TOOL CO.
SPEEDWAY MFG. DIV.
CHICAGO, ILL.

**POWER TOOLS**

Thor "SpeedDrills", Speed-Saws", "SpeedSanders", "SpeedGrinders" and "Speed-Polishers".

• TRUECRAFT TACKLE CO.
2425 S. MICHIGAN AVE.
CHICAGO, ILL.

**TOOL KIT**

Outboard motor tool kit in transparent plastic case. Price, $3.95.

• WALTER MACHINE CO.
90 CAMBRIDGE AVE.
JERSEY CITY, N. J.

**PROPELLER PULLERS**

Propeller pullers. Price, $12.00 to $75.00

• WEN PRODUCTS, INC.
CHICAGO, ILL.

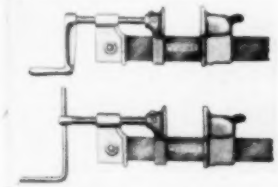
**POWER SAW**

Model 909 "All-Saw" cuts through wood up to 6 inches thick, cuts all metals, styrofoam, foam rubber, leather. Cuts curves and perfect circles with a circle gauge, starts its own inside cut. Price, $44.95 complete with 7 blades, rip guide, circle cutter and 45° tilting base plate.

• WETZLER CLAMP CO., INC.
43-15 11th ST.
LONG ISLAND CITY 1, N. Y.

**BAND CLAMP**

Has canvas band that holds any shape or size object. Adjustable to 30' long, with special lengths available. Ideal for pulling in planking, glueing irregular shapes, and other boat-building applications.



**BAR CLAMPS #50 & #51**

Feature rapid adjustment, self-locking device with instant release. #50 has fixed handle, #51 has sliding handle. Available in various opening ranges.

**DEEP THROAT CLAMP #1200**

Suitable for deep veneering, drill press work, steel fabrication, formica work, iron castings, steel bar and spindle. Available in various opening ranges.

• YUBA POWER PRODS., INC.
800 EVANS ST.
CINCINNATI, OHIO

**SHOPSMITH**

"Shopsmith" multi-purpose power tools and "Magnaline" single purpose power tools.


# The MARAUDER

## has more built-in features than any other boat in its price range!

Now . . . a wholly new design concept! . . . this twin-hulled beauty requires only one motor, gives you that so-smooth air cushion ride even at higher speeds. Featured is a between-hull tunnel structure. Air trapped in tunnel raises the MARAUDER quickly and smoothly to a plane, eliminates the "slap" and "pound" of older boat designs.

Stable! Has four identical no-trip chines . . . twice the number found on single-hull boats. While in a turn, at least two of the no-trip chines function at all times to give smooth, tight turns with complete comfort and safety . . . full response to controls!

The MARAUDER is an all-around boat—cruising, fishing, skiing, racing or just plain fun! It's a thrilling boat capable of full stability at high speeds . . . it's a boat that gives that comforting extra assurance of safety when the family is aboard. Double hulls greatly minimize roll, but more important, virtually eliminate capsizing danger!

**HIGHLIGHTS**

**13' 9" overall length • Maximum beam width 75" • Weight 475 lbs. (MK 7 model) • Mahogany frames and longitudinal members with oak at high stress points • Marine mahogany plywood sheathing • Exterior is fibreglas covered with double thickness on bottom of hull.**

Write today for details! Other Catamarans available — 16' runabout and 18' outboard cruiser.

Dealer inquiries invited.

MARAUDER CATAMARANS (Pat. Pending)

**CHRISTENSEN**
**Manufacturing Company**

Gate 5, Marinship, Sausalito, Calif. Phone: EDgewater 2-0723

# Special Design Section

- **New Boats**
- **How to Read Plans**
- **New Designs**

STUDY of the latest work in pleasure boat design both here and abroad indicates a number of new trends. Developmental research in the plastics field, new techniques of production, and imaginative designs by naval architects have all contributed to fill the needs of the boating public with a wide variety of craft. Outboard cruisers allow the small family the pleasures of cruising combined with the cost-saving of back yard storage. For water skiing and fishing, the fast runabout with detachable motor has become a familiar and practical solution for weekend sailors. Larger inboard power cruisers have utilized smaller, higher torque engines with low profiles for greater space saving and more usable living quarters, at the same time delivering the same shaft horsepower as with older, bulkier power plants. The marine diesel has undergone many refinements, chief of which are smaller, more compact configurations and great weight saving through the use of high-tensile strength aluminum alloy blocks. A new approach in propulsion systems, the inboard-outboard drive, promises to combine the advantages of the low gas-consumption of four cycle engines with the tilt-up feature so desirable for trailering, beaching and operating in shoal water.

All of these developments have contributed to allow designers and builders greater scope of imagination in planning new boats for 1959, and more versatility in the range of uses to which they may be put. Many of the results of these new concepts are included in the following pages of new boats. Catamaran type hulls with good stability and increased room, water ski tow-boats with good speed characteristics and trailability, as well as wholesome boats of time proven, traditional lines are included in this new POPULAR BOATING Design Section, so that readers may survey new boat trends.

In the preparation of this section, leading Naval Architects and boat manufacturers in the United States and abroad were canvassed for their latest work, and the results selected for maximum variety and interest. In future issues an expanded presentation of sea-kindly, practical and attractive boats, which are representative of the choices available to boatmen, will form a permanent feature of POPULAR BOATING's service to readers.——

# SPORTSMAN 40′ CRUISER BY HUCKINS

SPACIOUSNESS AFLOAT is designed into the Fairform Flyer line of stock boats built by the Huckins Yacht Corp., Box 6336, Jacksonville, Florida. The new 40′ Sportsman, above, is a high performance craft that serves equally well as an express-commuter, floating home, or a luxury sport-fisherman. The new boat is built with Huckins' "Quadraconic" hull design, which incorporates a modified Vee section forward, and round bottom aft. When powered with twin GM diesels, the Sportsman will plane at speeds to 36 mph. Optional Chrysler gasoline engines are also available. Construction is of double-diagonal mahogany planking over white oak frames. Fastenings are copper, bronze and Monel, with Monel fuel and water tanks. The new forty footer has sleeping accommodations for five persons, and is equipped with pressure water system and electric marine toilets. The Sportsman pictured above is equipped with flying bridge, fold-back outriggers, and bow pulpit. The Fairform Flyer is made in over 50 different models from 34 to 80 feet in length, with many power options.

## NEW HOLIDAY 300

A NEW 16 FOOT runabout with good stability and fast riding characteristics is now in mass production by Holiday Plastics, Inc., 1301 Fairfax Trafficway, Kansas City, Kansas. The planing outboard is built of fiberglass reinforced plastic with balsa wood stiffeners. Hull is of the soft chine type, with molded-in spray rails, reinforced bow, and integral flotation chambers. Decks are three-toned, seats are walk-through and the motor well is removable.

## 26′ FAMILY CRUISER

A WHOLESOME lapstrake family cruiser which sleeps four adults, and has roomy cockpit and cabin space is the 26′ express made by Pembroke Boats of Epsom, New Hampshire. Construction is of marine plywood planking, seams synthetic Rub-R-Tex bedded, over steam bent oak frames. She will ride at 25-30 mph with Chrysler Marine power plant of 125 to 180 HP. Head is enclosed, and dinette converts to a double berth. The cruiser is priced at $7,000.

# NEW PACEMAKER 40' SEA SKIFF

ALL WEATHER sea kindliness is claimed by the builders for the new Pacemaker 40 foot, twin screw sport fisherman at right. Planking is clear cedar over white oak frames, with white oak keel assembly. She is fastened with Everdur screws, countersunk and heads bunged. Bunks are provided for a party of six, with a roomy cockpit, fully equipped galley and enclosed head. All hardware is stainless steel or chromed brass, and an 8 cu. ft. refrigerator is standard. Diesel or gasoline engines provide top speeds of 26 knots and cruising speed of 18 knots. Pacemaker boats are made by C. P. Leek & Sons of Lower Bank, New Jersey. Principal dimensions are L.O.A. 40', Beam 12'7", Draft 2'11", Headroom over 6'.

## STOCK RACING HYDROPLANE

THOSE BOATMEN who like the thrill of driving a fast racing boat in competition, will be interested in this stock three point hydroplane by Swift Boats, Inc., Box 497, Mt. Dora, Florida. The model UHD, "Big-Dee" sells for $579.50 and qualifies under the C, D, and F, class hydroplane measurement rules. The craft is built for lightness and extreme strength of airplane grade spruce planked with 4mm three-ply marine grade plywood. Fastenings are brass and chrome screws, Anchorfast nails, bronze bolts, and phenolic resin bonding. Big-Dee's dimensions are L.O.A. 11', Beam 6'.

## FAST FIBERGLASS RUNABOUT

A NEW PLANING runabout with futuristic lines is the 18 foot Neptune, right, created by the Marlin Fiberglass Boat Co., of Boca Raton, Florida. The Neptune is available in either inboard or outboard powered models, and is constructed of fiberglass reinforced plastic with built-in flotation tanks. The craft features a sweeping sheer line, fins, wrap-around windshield, navy top for shelter.

how to...

By John L. Duffett

# Understand Boat Plans: Part II

## Here is the information contained in the Designer's "Lines"

LAST MONTH POPULAR BOATING presented some basic information to aid the boatman in understanding elementary terms and techniques used in Naval Architecture. (See, "How to Understand Boat Plans," March, 1959.) In this issue we explore the information contained in a set of designer's "lines."

### WHAT ARE "LINES"?

Like most other arts, over the centuries Naval Architecture has evolved a tradition and a set of terms that are well adapted to expressing the techniques of boatbuilding. The problem of how to represent a complicated three dimensional shape, such as a round bottom boat, on a flat surface like drafting paper, and still communicate something meaningful to the builders has been solved by the use of "lines." So detailed and universal has the language of boat design become over the years, that a Naval Architect of today can pull a set of plans for a galleon of the 14th century from the shelves of some museum and, with the information contained there, faithfully recreate the vessel. It is the "lines" that make this possible.

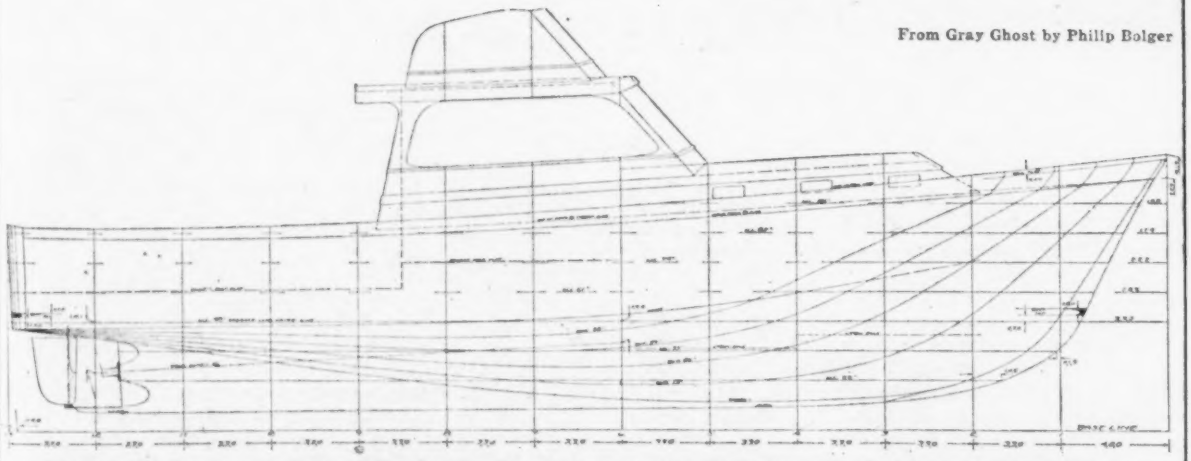
A vessel's lines consist of a series of views, coordinates, and measurements as given in a Table of Offsets, which allow the builder to "loft" the boat full size. After the craft has been laid down in this manner, patterns can be made for the individual pieces of the keel, stem and stern assemblies. From the mold loft body plan, the shape of each individual cross-section for every station given in the Table of Offsets is established, patterns are picked up, and molds made of heavy timbers strong enough to resist the strain of bending ribbands or planking around the molds. The molds are set up, on the keel assembly, and the work of steam bending frames and planking begun.

Although we will attempt here to make all the elements of a set of builder's lines understandable there are many details and short cuts which must necessarily be left out. An extensive coverage of such boatbuilding techniques, for the yachtsman who wishes the experience and satisfaction of laying down the lines and building his boat from blueprints, is available in several fine books. *Boatbuilding* by

PLANS continued on next page

A Table of Offsets contains, in tabular form, all the dimensions worked out by the designer that are necessary to build a boat. The top line numbered from 1 to 13 represents the stations. Heights above the base line for each station are given in the table. Figures are given in set of three, the first for feet, second for inches and third, eighths.

From Gray Ghost by Philip Bolger



This profile is from a wholesome sport fisherman by Philip Bolger of 250 Washington St., Gloucester, Mass. Spacing of the station lines at right angles to the base line, waterlines, and faired in buttocks are shown to advantage. The craft has a curved transom, clipper bow, flat rail and flying bridge atop the cabin. Stock plans are available.

# BASIC TERMS USED IN NAVAL ARCHITECTURE

**BODY SECTION**—The view which would result if a boat were cut through in a transverse or thwartships direction, at right angles to the keel.

**TABLE OF OFFSETS**—A tabular method for listing the dimensions necessary for lofting a boat.

**LOFTING**—The process of using long flexible battens to lay down the lines of a boat full size so that patterns may be made.

**LINES**—The complete set of blueprints or working drawings consisting of profile, half breadth, body plan, and table of offsets, used by the boatbuilder to reproduce or loft full size, the creation of a designer.

**FAIRING**—The process of connecting measurement markings with a long flexible batten and drawing in sweeping, curved lines, free from humps or irregularities. Determination of whether or not a line is "fair" is largely the result of experience and a "good eye."

**SHEER**—The longitudinal curvature of the deck, at the side, between stem and stern. The sheer line shows the variation in height of the deck above the water throughout the length of the boat.

**BASE LINE**—The straight reference line in body, half breadth, and profile plans from which the measurements to establish a boat's shape are laid off.

**WATERLINES**—Straight lines parallel to the base line. The Load Waterline (L.W.L.) represents the boat's normal flotation mark. Waterlines projected to the half breadth plan are curved and are extremely valuable for fairing up the hull.

**BUTTOCKS**—Lines on either side of the body plan center line, used as reference points for laying off the measurements from the Table of Offsets to establish body shape.

**DIAGONALS**—Lines which stretch away from the body plan centerline at an angle. Diagonals are used as reference points for "fairing" the lines of a hull.

**CENTER OF LATERAL PLANE**—The central point of all the combined areas of underbody of a hull. Especially important in sailboats, as lateral plane of either the keel or the centerboard prevents picking up leeway. Also called by some designers the "Center of Lateral Resistance."

**CENTER OF BUOYANCY**—The central point at which the upward thrusting force of water is concentrated on a boat hull.

**CENTER OF GRAVITY**—The central point toward which all weights of a hull and its fittings concentrate their downward gravitational thrust. If a hull's center of gravity is not directly over its center of buoyancy, the vessel will be "out of trim," that is, down by the head or stern.

**CENTER OF EFFORT**—That point in the combined sail plan of a sailboat toward which all the wind's thrust is exerted.

**ENTRANCE**—The bow shape in cross section of a hull.

**RUN**—The hull shape under the stern, especially where receding water last contacts the hull.

**TUMBLEHOME**—A curving inward of a boat's body section near the sheer, as in an oval shaped transom.

**FLAM**—A convex swelling, or curving out in the body section, the opposite of "flare," which is a concave, or hollowed out section.

**MOLDED MEASUREMENT**—The width of any structural member of a boat.

**SIDED MEASUREMENT**—The thickness of any structural member of a boat.

**SCANTLINGS**—A trade term in boatbuilding which means nothing more than "size" or "dimensions" of the component parts of a boat.

## PLANS continued

H. I. Chappelle, published by W. W. Norton, is one of the classics in the field. *Yacht Design and Planning*, by the same author and publisher, is a complete treatise on yacht design, as is *Elements of Yacht Design* by Norman L. Skene, published by Yachting, Inc.

### ELEMENTS OF A SET OF "LINES"

The lines of a design consist of four separate items: 1. A Table of Offsets. 2. A Profile or side elevation, 3. Half-breadth, and 4. Body plan, or Body section. In actual drafting practice, in order to save space, these individual elevations may be superimposed and drawn one over the other. It is this profusion of lines that often confuses the boatman. There is nothing enigmatic about the method when one learns to interpret what each view is designed to show.

### PROFILE

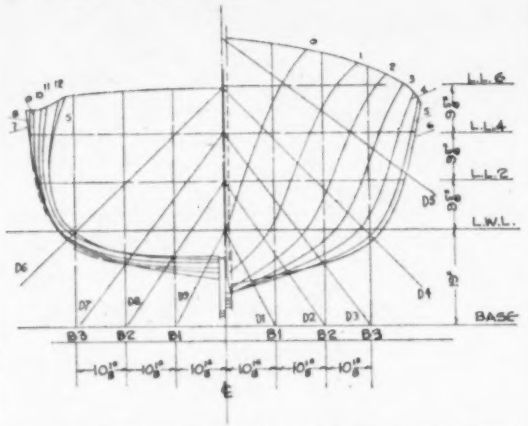
The profile view of a vessel will determine the hull shape as viewed from broadside. In lofting, the outline of the hull is obtained by snapping a chalk line on a smooth mold-loft floor to establish a straight base line from which measurements may be taken. Station lines are then laid off perpendicular to this base line at intervals which are either given in the table of offsets or annotated directly on the profile view itself. From the offset table is then taken the measurement of the height of the sheer at each station. These marks are ticked off on the loft floor (note: for small boats, sheets of building paper or plywood are often used instead) working from bow to stern. When these tick marks have been "faired," or connected with a long, flexible batten, the resulting line is drawn in, and the shape of the sheer is established.

Additional measurements known as "waterlines" (abbreviated W.L. or L.L.) is also found to be listed in the Table of Offsets. These are laid off at the stated intervals, parallel to the base line. The purpose of waterlines is to furnish additional reference points for measurements, and also to provide a check on the shape of body sections as taken from the data in the Table of Offsets. Sometimes an error of calculation or printing will cause an offset dimension to be wrong. Projection of the waterlines to the half-breadth plan and "fairing" with a batten will catch this immediately, and the correct shape as represented by the batten is used instead.

### NOTES ON "FAIRING" LINES

There is no check on whether a line is "fair" other than a reasonably good "eye." It is this feeling for shapes which has made the reputation of the best boatbuilders and designers. Careful and painstaking work, however, can make up for a lot of experience. Several long, clear grained battens of first grade lumber should be made up with varying degrees of flexibility before lofting begins. Refer back to the books on boatbuilding for the average dimensions of these battens.

From Chaser by John Atkin




**Placement of coordinates is graphically shown, above. Buttock lines are 10⅛" out from centerlines, L.W.L. 19" up from the base, and water lines 9⅝" apart. Diagonals are at an angle to the body centerline.**

PLANS continued

## BODY PLAN OR SECTION

For the actual making of molds, or establishment of the shape of ribs, the body plan will be consulted. Shape of the body plan is taken from the Table of Offsets and usually drawn superimposed on the profile station line which represents the midships section. It must be remembered that a different view of the hull is presented on either side of the body plan centerline. Usually the right half will represent the view as seen from the bow back to the middle station, and the left hand side the view as seen from the transom forward to the middle station.

To the right and left of the body plan centerline, will be seen spacing for lines known to boatbuilders as "buttocks." These are used as reference lines for measurements, and when projected to the profile plan are used as fairing lines to true up the hull. On the body plan also will be found "diagonals," which slope away from the body plan centerline at an angle. Some builders have adopted the practice of ignoring the fairing of diagonals in an attempt to save time. This is a sloppy practice and one which the dedicated professional and competent amateur will avoid. Diagonals are extremely important in developing a true hull shape as desired by the designer, especially in developing the curvature near the turn of the bilge; it is, therefore, a foolish builder who does not take advantage of all the data at his disposal for insuring that his boat has been properly and faithfully lofted.

## HALF BREADTH PLAN

The half breadth plan represents a "bird's eye" view of the hull as seen from above looking down, or with a little imagination, from below looking up. The half breadth plan establishes the outline of the deck, the point of greatest beam, and the half-siding of keel, stem and transom members. In addition, the half breadth is of greatest value in fairing up the waterlines, and sheer. Particular attention should be given to the location of the Load Waterline (abbreviated L.W.L.) on the half breadth, to insure it is an easy, sweeping, fair curve, since this portion of the hull will represent where the boot topping, or waterline stripe will be located on the finished hull. Any irregularities or lack of fairness will be readily apparent to the viewer.

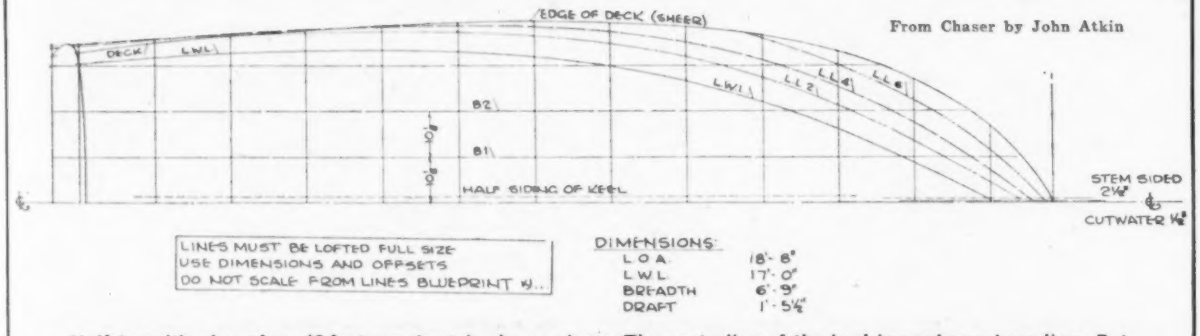
## HOW TO ANALYZE LINES

There has been a lot of material written by some boat designers about the amount of information that can be gotten from a set of lines. Some of these designers have gone so far as to make mathematical statements about the effect on speed or seaworthiness of "such and such" a shaped buttock line, or waterline. In reality these factors are never constant, and to claim that a certain waterline is "faster" is to over-simplify the problems involved. For example, the actual working waterline of a sailing vessel changes with the angle of heel and the force of the wind in her sails, as well as with the amount of stores and crew aboard. A boat which performs in one manner when lightly loaded, may do better or worse when additional ballast is added. It may be true that a motor cruiser with a "fine entry" and flat after body will prove a fast boat, but "fastness," like "seaworthiness," is a result of the sum total of all the factors of a design, and not any isolated element. The boatman should carefully evaluate his needs, and if he requires a fast, planing outboard for quick trips back and forth to the fishing grounds, should not choose a heavy displacement, full bodied, deep draft hull, for no matter what power is applied, it will just *not plane*. Conversely, if you must stay at sea in dirty weather, or if your home waters are habitually rugged, a deep draft, heavy displacement vessel with good freeboard and adequate ballast, will be much more satisfactory.

Lines should be analyzed with the owner's personal taste and requirements as criteria for selection. If you habitually cruise with a large family on over-night or weekend trips, look for a roomy deep displacement hull. The body plan cross-sections will give a good indication of the amount of room available within a hull for interior fittings and cabin furniture. If you are a sport fishing enthusiast, look for a boat that will be easily driven, yet with good sea-keeping

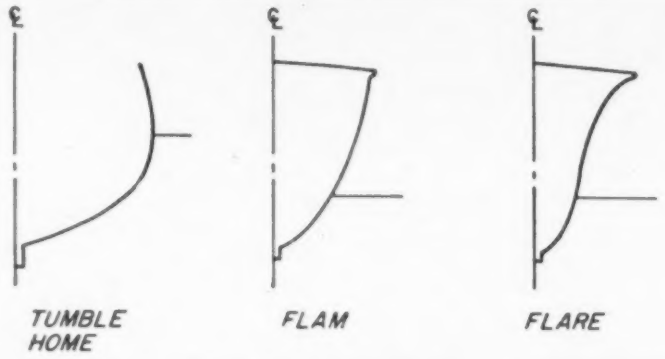
**PLANS continued on next page**

From Chaser by John Atkin




**Half breadth plan of an 18-foot runabout is shown above. The centerline of the keel is used as a base line. Buttocks, waterlines, and sheer lines have been drawn in and faired. In this view the half-siding of the keel timber and stem is also given. The transom shape has been drawn-in ready for projection.**

In the development of the sections of a round bottom boat, many shapes are employed by the designer. Some of these forms are harder to loft than others. An illustration of three contours with their technical names, is shown at right. Tumblehome refers to a curving-in of the deck line, Flam to a swelling out at the turn of the bilge, and Flare to sweeping outward.




characteristics. Such a hull is usually fine in the entry, with moderate deadrise and pronounced flare to deflect the spray of choppy seas, and relatively flat in the afterbody to allow her to get up and plane. If you enjoy the thrill of high speed competitive racing, you should learn to recognize the flat-modified Vee sections of the racing runabout, its low slung profile and minimum freeboard. (See: *More Speed From Your Boat and Engine*, by Hank Wieand Bowman, in this issue of POPULAR BOATING.) To sum up, the boatman should scan a set of boat lines carefully, it is an added tool to help you pick "the right boat for the right job."

## BUILDING FROM "LINES"

There is no reason why any hobbyist who can put together a well built cabinet or bookcase cannot build a workmanlike boat. If you are reasonably handy with tools, and care to take the trouble to do a little preliminary study and investigation into boatbuilding methods and techniques, you can embark on a project that can fill your spare time with meaning as well as produce a useful craft that will give years of enjoyment.

Purchase several good books on boatbuilding, talk with the professionals in your area, pick the design that appeals to you, and go ahead. Don't be too ambitious at first, and if you encounter a difficult job, try and get advice from a local boatbuilder. They are not all surly bears desperately trying to keep the arts of their trade a "family secret." The next time around, you will be able to do that same troublesome job with ease.

## LEAVE THE LINES ALONE

One of the temptations that the Devil places in the way of amateur boatbuilders, is the almost unconquerable urge to alter original lines. Well-meaning boobs who never owned a boat in their life will wander into your shop and suggest that, "this should be a little longer, and that ought to be a bit heavier. . . ." Unfortunately there is no open season on kibitzers. You yourself will be tempted to "raise the sheer a little, or get a little more headroom into the cabin." Resist it. A lot of good designs have been ruined by tampering. If you think enough of a designer's work to expend the time and money to build his boat, build it the way he intended it to be. If not, search around for a different set of plans that will incorporate the changes you wish, or contact the designer and buy his expert professional advice.

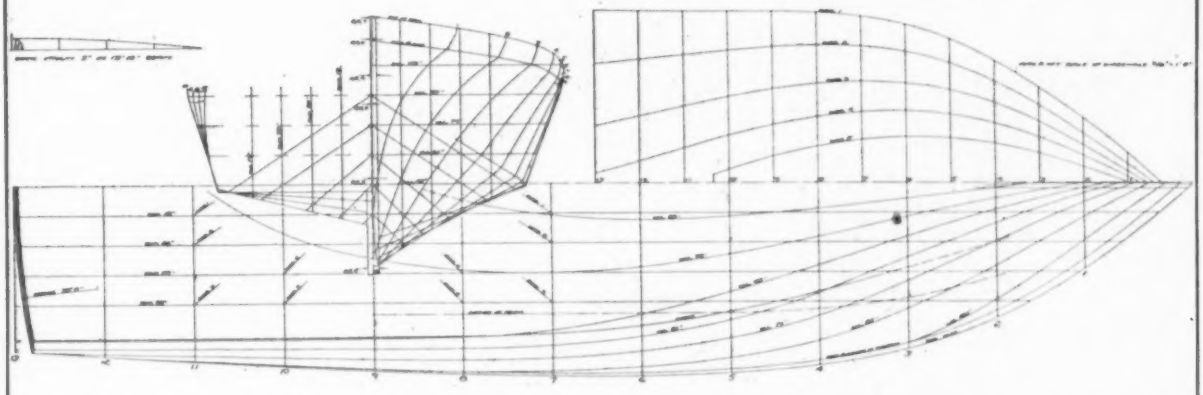
## "WINDOW SHOP" FOR YOUR BOAT

This month POPULAR BOATING launches a newer, bigger, more complete Design Section as a service to readers who are in the market for a boat. The latest designs from the drawing boards of boating's most noted Naval Architects will be announced. Inboard, outboard, power and sail, houseboats and racing craft, will all be represented.

With this section and an understanding of what boat plans and "lines" are meant to show, you are well equipped in the search for that "ideal" boat.

—JOHN L. DUFFETT

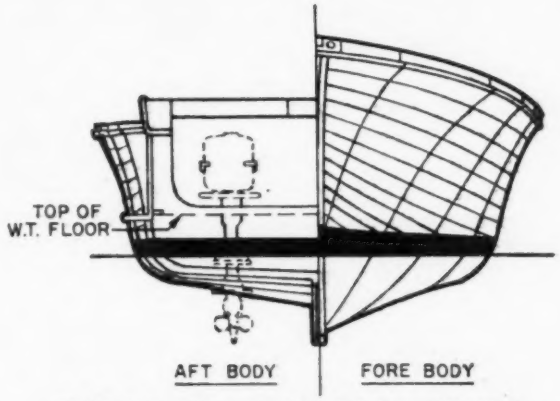
From Gray Ghost by Philip Bolger



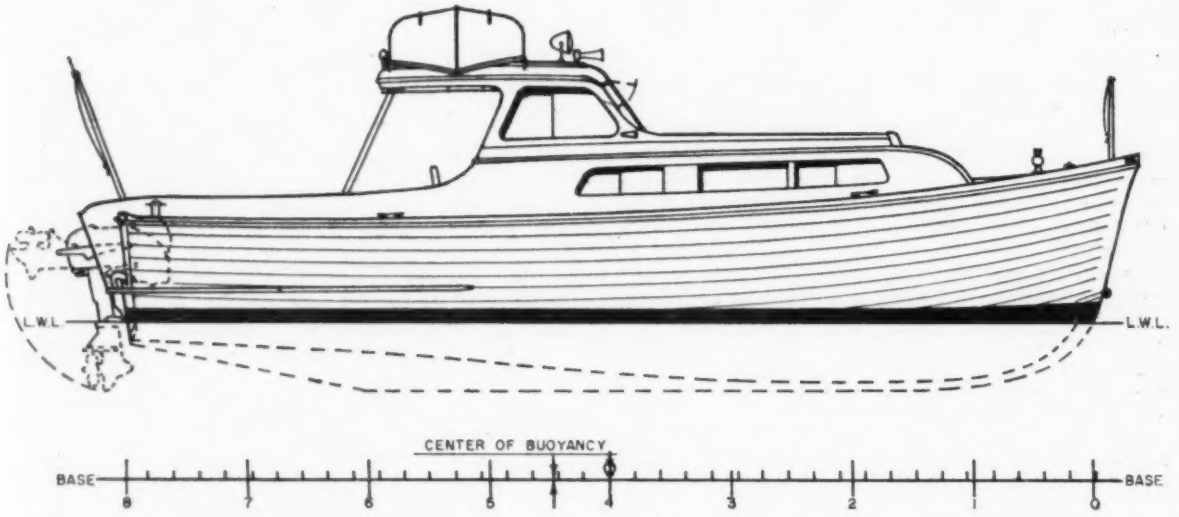
For space saving, it is best to loft a boat with the separate views, or elevations superimposed, one upon the other. In laying down the lines for this 43-foot modified Vee bottom sport fisherman by Philip Bolger, station 9 was also chosen to represent the centerline of the body section. In the upper right of the lofting, the stations have been contracted to one-half their normal length to save space in fairing up the diagonals. Deck crown pattern at upper right.

# "TERN"—UNUSUAL 30' OUTBOARD CRUISER

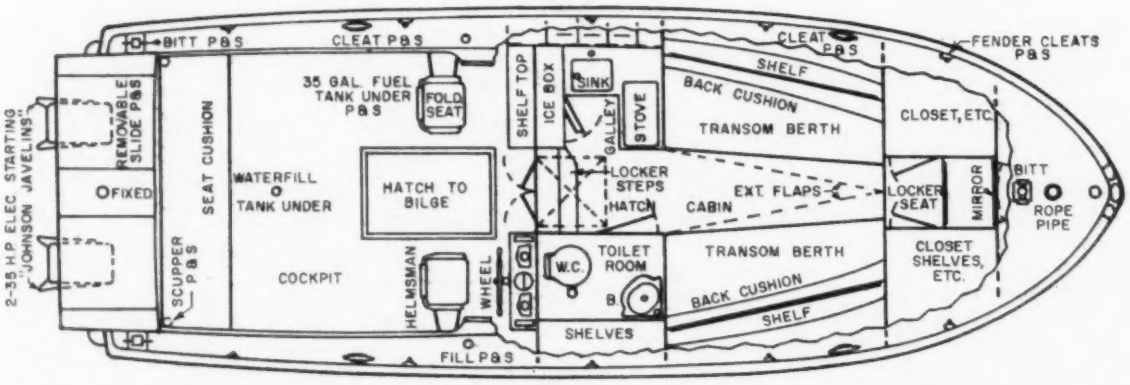
ONE OF THE MOST interesting new boats that we have seen recently, is the *Tern*, a 30 foot twin screw outboard cruiser which was designed by Eldredge-McInnis, 131 State St., Boston, Mass., for a yachtsman who will base her at East Hampton, L. I. With the increased reliability and higher horsepower options of outboard motors, it is possible that she will set a new trend in wholesome outboard cruiser designs. *Tern* was built by Goudy and Stevens of East Boothbay, Maine, to highest traditional boatbuilding standards. The designer states that the owner wanted, "a simple boat with a minimum of through-hull fittings, maintenance, and appendages . . . and felt that having had numerous outboard boats, that they would solve the problem nicely." With twin Johnson 50 HP motors, attached to a Marmac steerer and Morse single lever control, she is maneuverable and will reach a top speed of 18 MPH. L.O.A. 30', L.W.L. 28'4", Beam 10'3½".




**Tern's twin motors are installed in a self-bailing water tight well. They are electric starting and tilt up for beaching or hauling on a marine railway. Body sections of the lapstrake cruiser are shown above.**



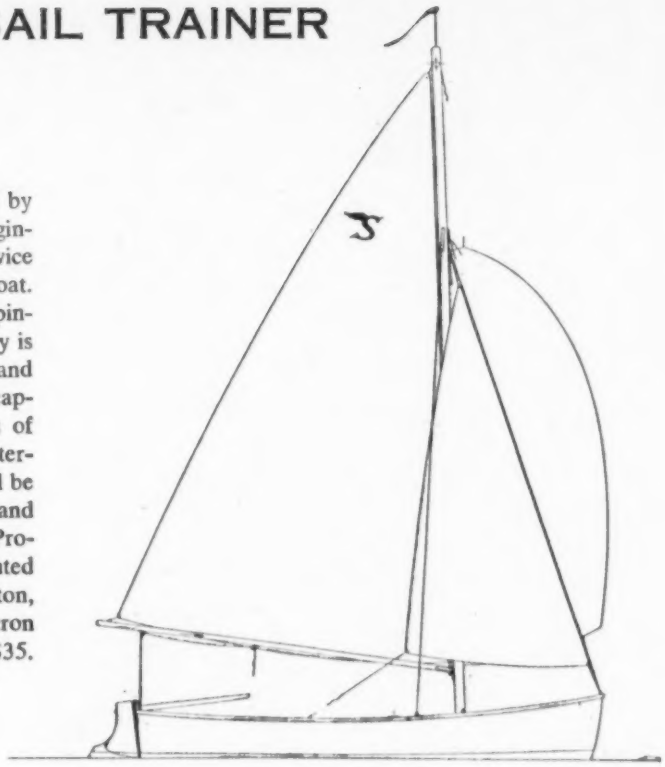

**The new outboard cruiser is built of lapstrake mahogany over white oak frames, with white oak keel and deadwood assembly. Fastenings are Everdur, all trim is mahogany, and decks are waterproof plywood.**

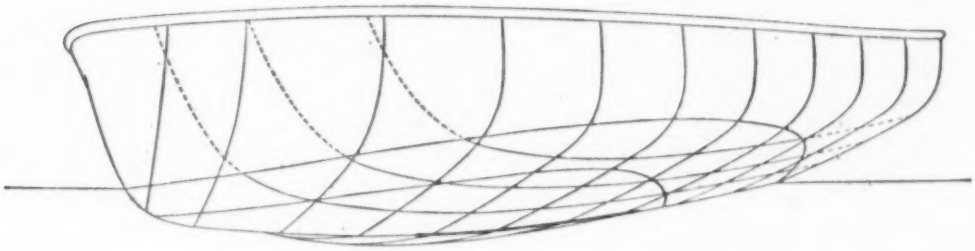



**Tern's owner required sleeping accommodations for only two, which permitted spacious galley facilities and an enclosed toilet room. Large forward lockers provide ample stowage space for mooring and docking lines, and other ship's gear. The roomy after cockpit is self bailing. Equipment includes a power capstan, two burner alcohol stove, ice box, and stainless steel sink. Monel tanks carry 70 gallons of fuel and 35 fresh water.**

# NEW FIBERGLASS SAIL TRAINER

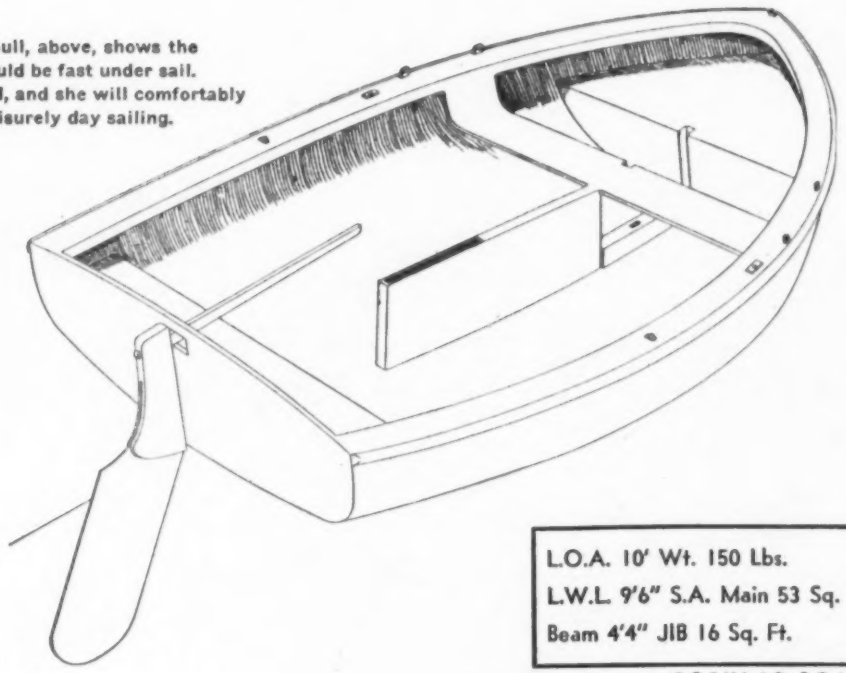
SPRITE is a new day sailer which was designed by Robert Baker as a low cost sail trainer for beginners of all ages. The rig is made so that the novice can learn to sail with Sprite rigged as a simple catboat. After mastery, the mast is moved aft and a jib and spinnaker added for competitive racing. The new dinghy is of fiberglass construction with colors molded in, and integral air tanks for positive bouyancy in case of capsizing. The 10-footer is built by Marscot Plastics of Fall River, Mass., with pivoting rudder and centerboard. Mast and boom are wood. The first fleet will be delivered to St. George's School in Newport, R. I., and the second to the Pleqn Yacht Club Junior Sailing Program in Marblehead, Mass. Sprite will be distributed by George O'Day Associates, 9 Newbury St., Boston, Mass., and will be priced at $390 less sails. Dacron main and jib are $50. Nylon spinnaker and gear is $35.





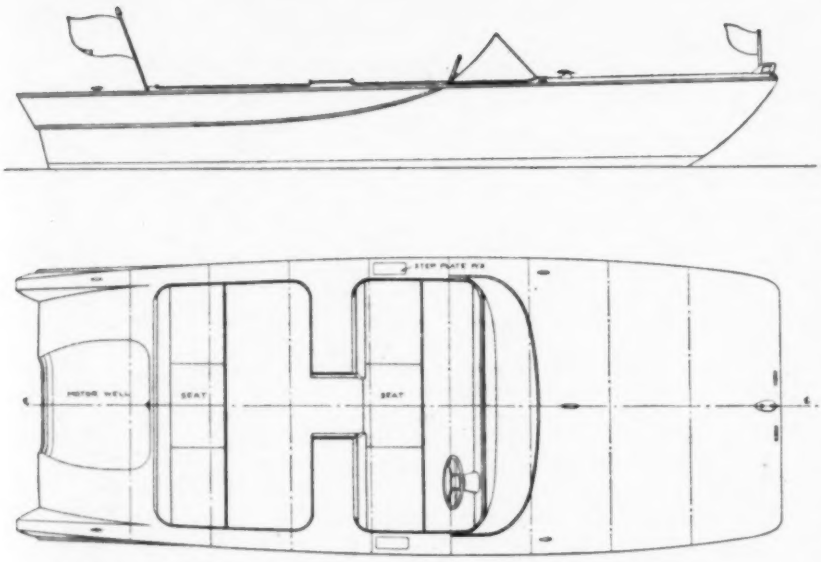
**Perspective view of Sprite's hull, above, shows the flat planing type boat that should be fast under sail. Her stability is said to be good, and she will comfortably carry up to four persons for leisurely day sailing.**

**Sprite is light enough to be placed on the car top for transportation to and from regional regattas, or for family vacations. Buoyancy tanks and color are molded-in for minimum maintenance. The new trainer's design was worked out with maximum versatility in mind. A small HP outboard may be added as an auxiliary.**



L.O.A. 10' Wt. 150 Lbs.
L.W.L. 9'6" S.A. Main 53 Sq. Ft.
Beam 4'4" JIB 16 Sq. Ft.

# MAR LISO SEA SLED

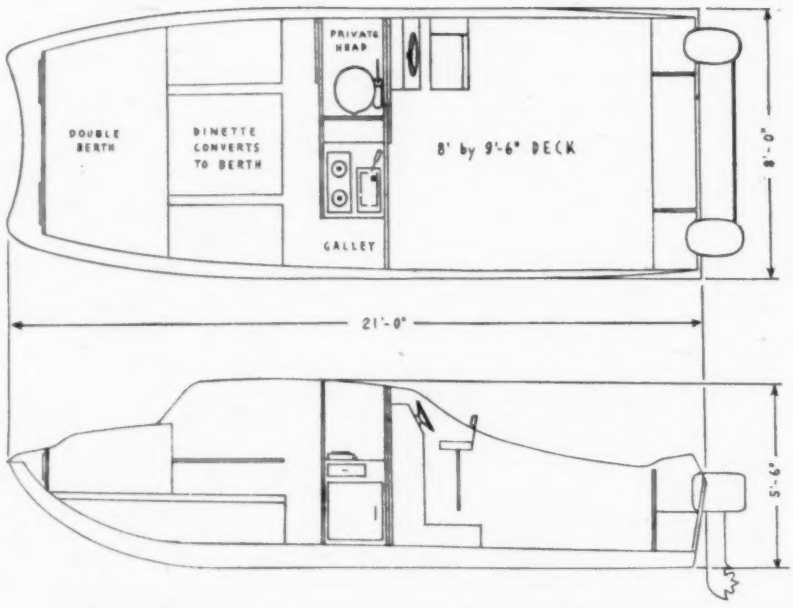



The new sea sled is said to ride level, with good stability and to remain maneuverable even at high speeds. A walk-through center deck provides easy access to the after cockpit. Curved windshield deflects spray from the helmsman. Large forward deck facilitates anchoring.

THE HIGH SPEED characteristics of the sea sled-type craft have long interested many Naval Architects. This new 17½ footer from the board of George E. Meese, of Annapolis, Md., is built and sold by Mar Liso Custom Sea Sleds, Box 1065, Pine Castle craft is strictly for high speed runabout-type use and makes a good water ski tow boat. She is built for single or twin outboard power to 95HP, and with her non-trip chines, is said to maneuver well in rough seas and offer exceptional stability. Construction is of batten seamed mahogany bottom and white oak side frames covered with waterproof marine plywood. The motor well is fabricated of fiberglass reinforced plastic for watertightness and ease of cleaning. The roominess possible with the sea sled hull has provided seating for six. Principal dimensions are L.O.A. 17′6″, L.W.L. 14′8″, Beam 7′, Draft, 6½″ when at rest.

# JET CAT-HYDRO-SLED

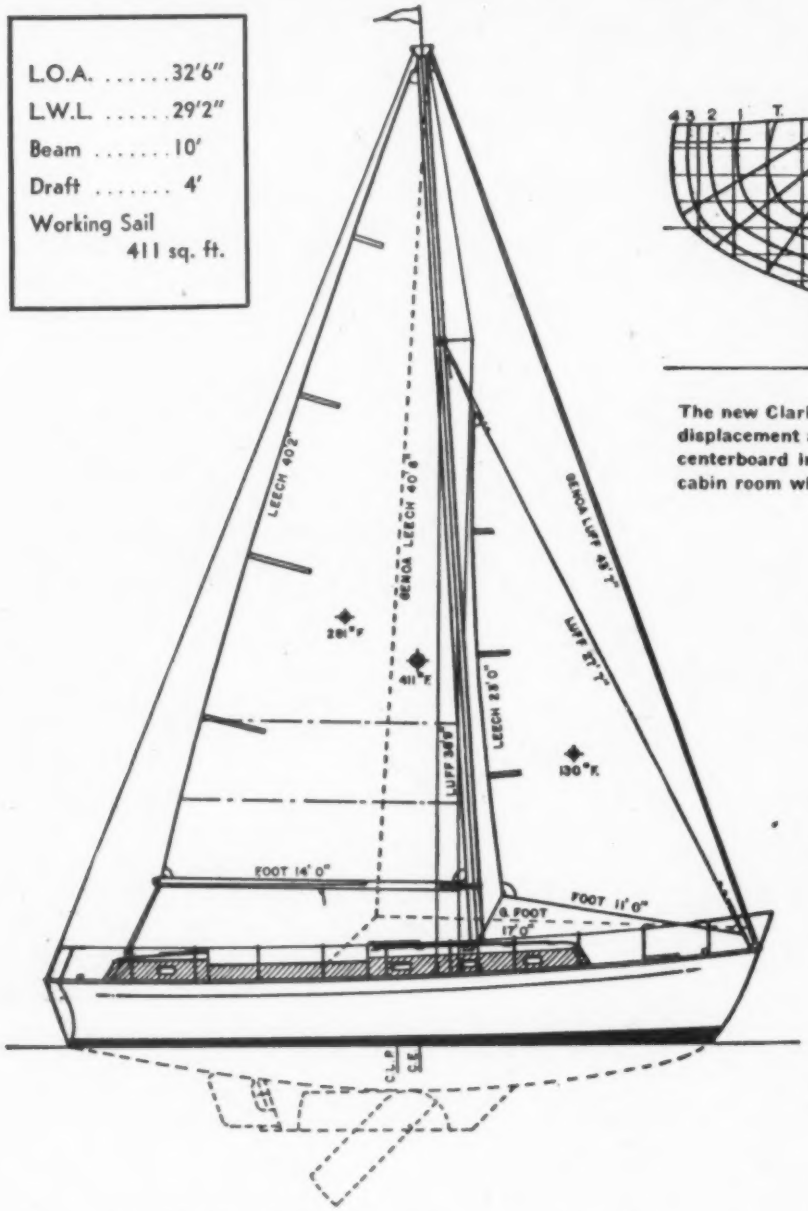
ANOTHER VARIATION of the sea-sled, but with cabin accommodations for five or six persons, is the twin-hulled Jet Cat, designed by Till Schmid. Described by the makers as incorporating hydro-sea-sled-catamaran principles of planing craft, the Jet Cat achieved speeds of 40 knots with 140 HP in her preliminary trials. The boat is made of molded fiberglass with integral foam flotation, a double bottom, and 15 water tight compartments. She features a dinette which converts to a double berth, galley with sink, and enclosed marine head. The cockpit is roomy and contains a varnished mahogany binnacle box, cabinet, and control panel. The helmsman's seat folds out of the way and four storage compartments are provided for ship's gear. Jet Cat is made by the Fiber-Resin Corp., 125 West Verdugo, Burbank, California. She is priced at $3,995 in the standard model. Dimensions are L.O.A. 22′3″, Gunwale length 23′9″, Beam 8′.



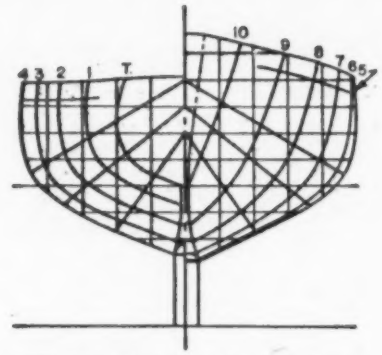

This new high speed craft has unusual roominess for her size and can sleep five or six persons. Integral fuel tanks and any other desired custom features are offered on request. The Jet Cat can be powered by twin coupled outboard motors or with single or twin inboard engines.

# 32 FOOT AUXILIARY SLOOP BY JOHN B. CLARK

L.O.A. .....32'6"
L.W.L. .....29'2"
Beam .....10'
Draft ..... 4'
Working Sail
411 sq. ft.

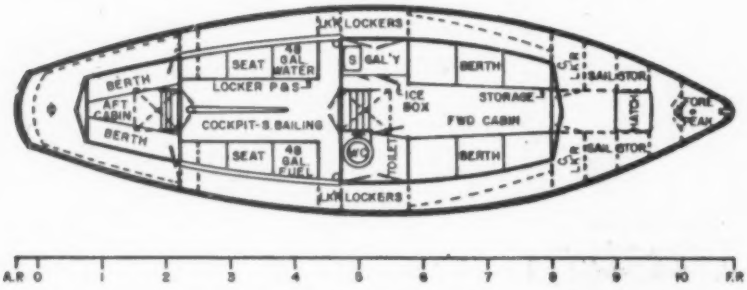



Power is supplied by a four cylinder Universal Aqua-Pak engine. A permanent backstay and jumper stays are features of the rig, and her sail area is moderate so that it can be handled by one or two persons.




The new Clark sloop is of moderate displacement and houses her centerboard in the fin keel to save cabin room when living aboard.

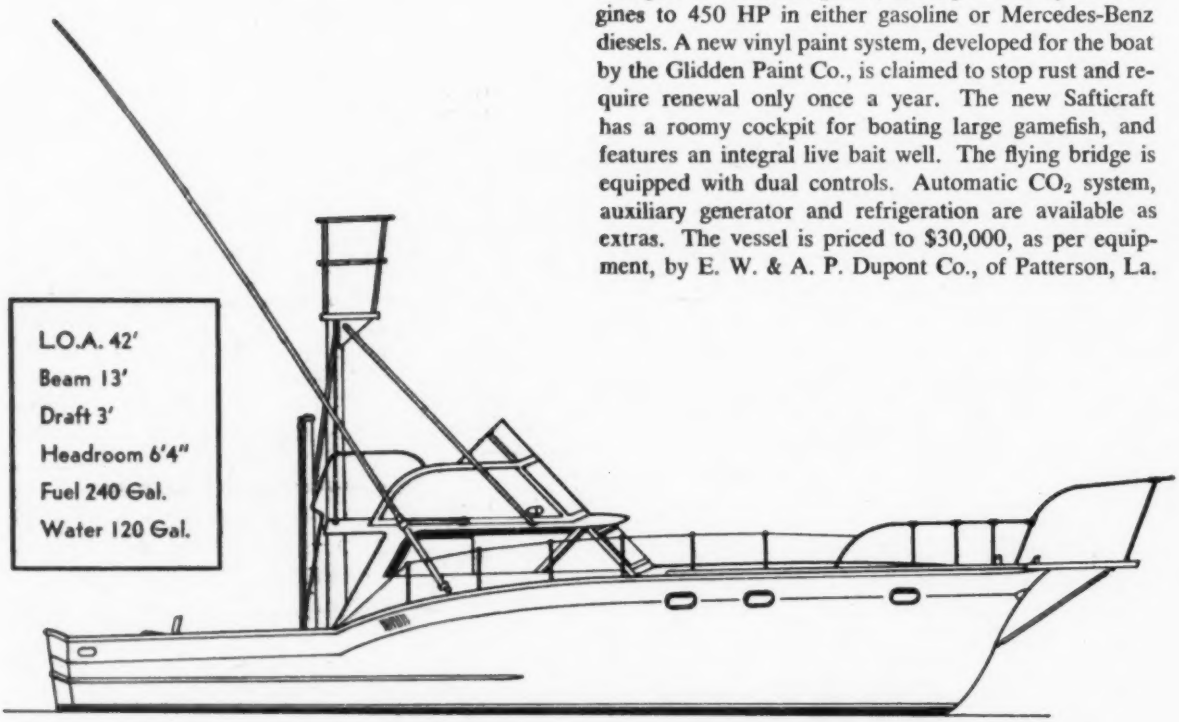
A LOT OF BOAT for her length was designed into this little 32 foot sloop, by John B. Clark, of Box 66, Bay Village, Ohio. The boat was conceived with the needs of the average family in mind, and the double cabin arrangement provides an ideal place to put the children to bed early out of the noise and festivities of a crowded anchorage. Her rig is high aspect ratio with all sail inboard for ease of lowering when the weather blows up. High stanchions and safety rails run completely around the sheer for added security when the crew is working on deck. The center cockpit is self bailing, with water and fuel tanks, and stowage under port and starboard seats. Its location affords the helmsman protection from both bow spray and spume from following seas. The new 32 footer has a centerboard housed in her fin keel. Construction is to highest traditional standards with steam bent frames and strip planking. Her displacement is 11,300 lbs. and ballast is 3,800 lbs. There is ample locker and stowage space for sails and gear in the large forepeak, and a forward hatch admits light and air. The spacious new auxiliary was designed for Mr. L. G. Van Sickle of Lorain, Ohio.



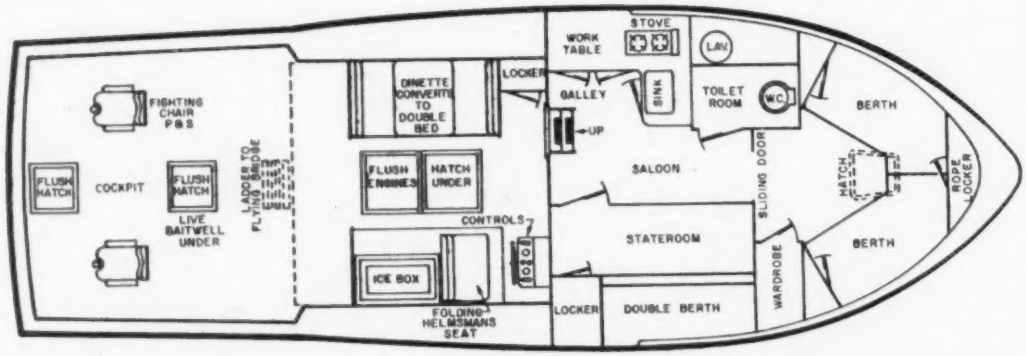

The after cabin has its own access hatch and stowage lockers. The marine toilet is enclosed and galley with sink and icebox is opposite.

# 42 FOOT STEEL SPORTFISHERMAN

FOR YACHTSMEN who prefer a steel boat, this new 42 foot sport fisherman by Safticraft offers an interesting choice. The hull is built from special lightweight steel alloy and "crimped" in building for added strength. The craft sleeps six, and is powered by twin engines to 450 HP in either gasoline or Mercedes-Benz diesels. A new vinyl paint system, developed for the boat by the Glidden Paint Co., is claimed to stop rust and require renewal only once a year. The new Safticraft has a roomy cockpit for boating large gamefish, and features an integral live bait well. The flying bridge is equipped with dual controls. Automatic $CO_2$ system, auxiliary generator and refrigeration are available as extras. The vessel is priced to $30,000, as per equipment, by E. W. & A. P. Dupont Co., of Patterson, La.



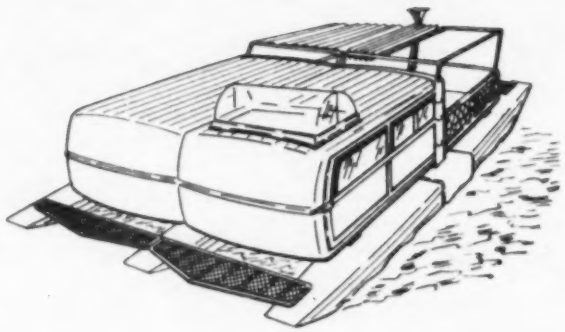

**The new sport fisherman presents a pleasing profile, with a reverse sheer forward and a low cockpit aft to aid in boarding fish. Tuna tower, pulpit, gin pole, outriggers and fighting chairs have been indicated in the drawing by Popular Boating's artist as an example of optional extras for extensive sport fishing. Flying bridge with dual controls and access ladder topsides are standard equipment. Hull is welded lightweight steel alloy.**

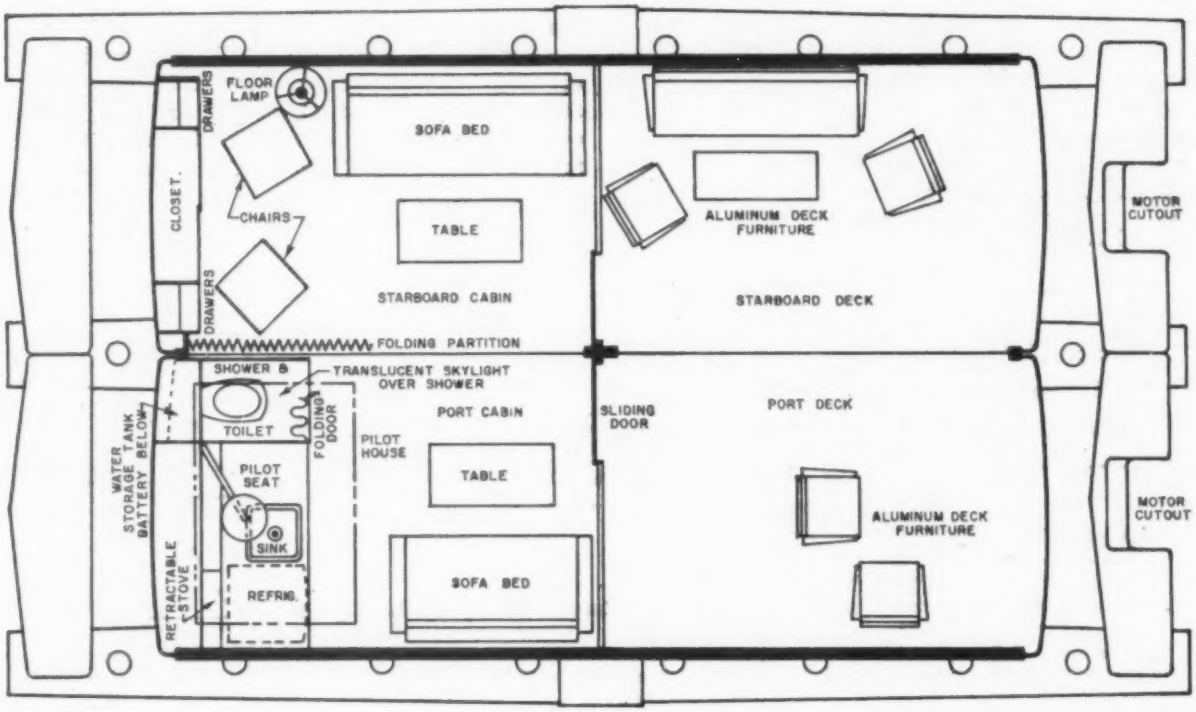


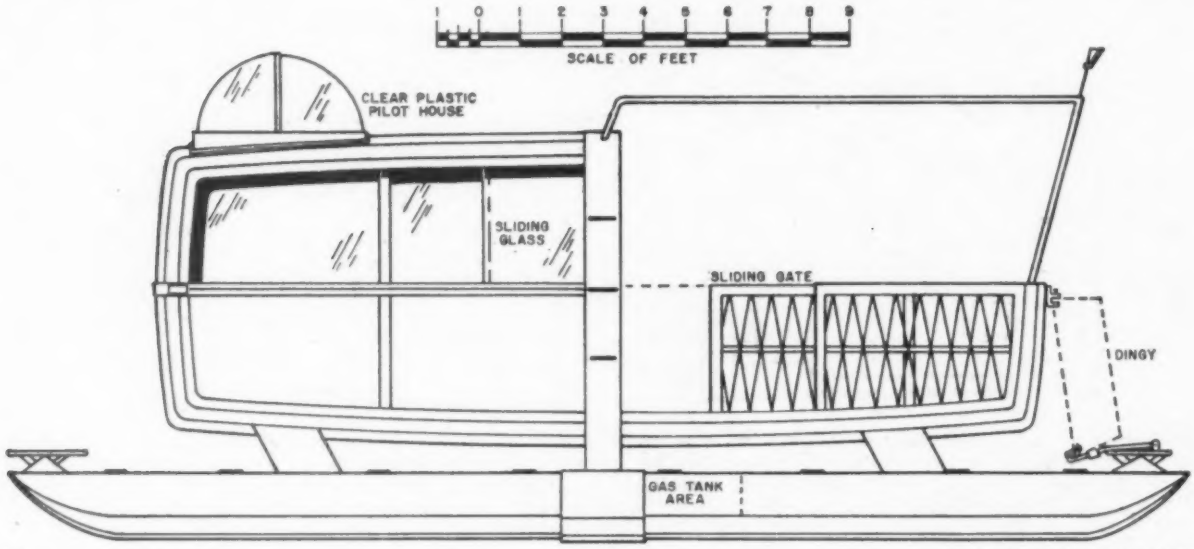

**Hull of the Safticraft is made with welded 11 gauge steel sides and 10 gauge modified Vee bottom plating. Interior fittings include stainless galley, foam rubber berths, sliding windows with screens, two-burner alcohol stove, rope locker, enclosed toilet room, and ample stowage space. The helmsman's seat drops out of the way when not in use, and the dinette table converts to a double bed. Cabin interior is varnished mahogany and stainless steel.**

# NEW "HOUSEFLOAT" BY BROOKS STEVENS

A NEW CONCEPT in living afloat is the "Modular Housefloat" designed by Brooks Stevens for the Evinrude Motor Co. as a sample prototype for exhibition at regional boat shows. The "Modular" refers to elasticity of the floating home, which can be expanded to a four room unit by the addition of another pontoon and living section. The units are joined like a jig saw puzzle with aluminum extrusions. The craft is powered with twin outboard motors which steer from the flying bridge.



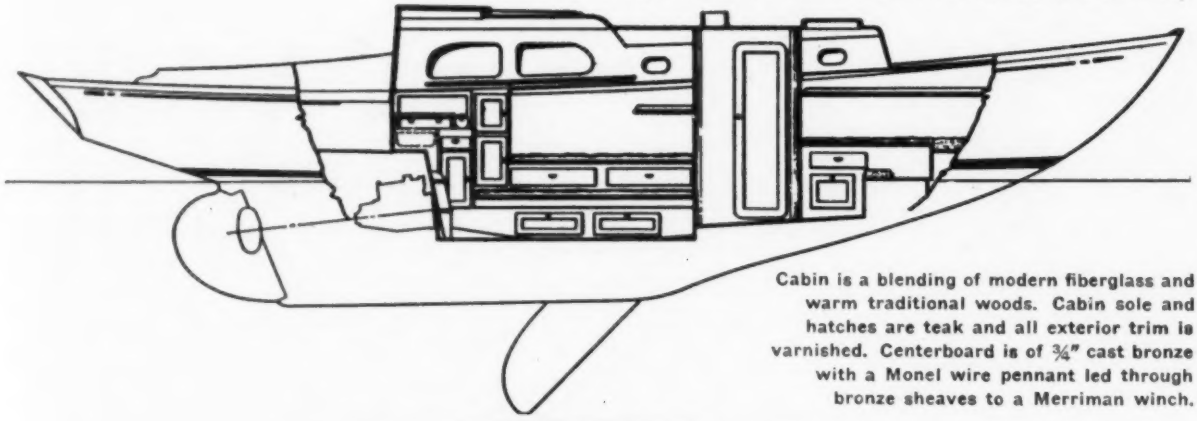


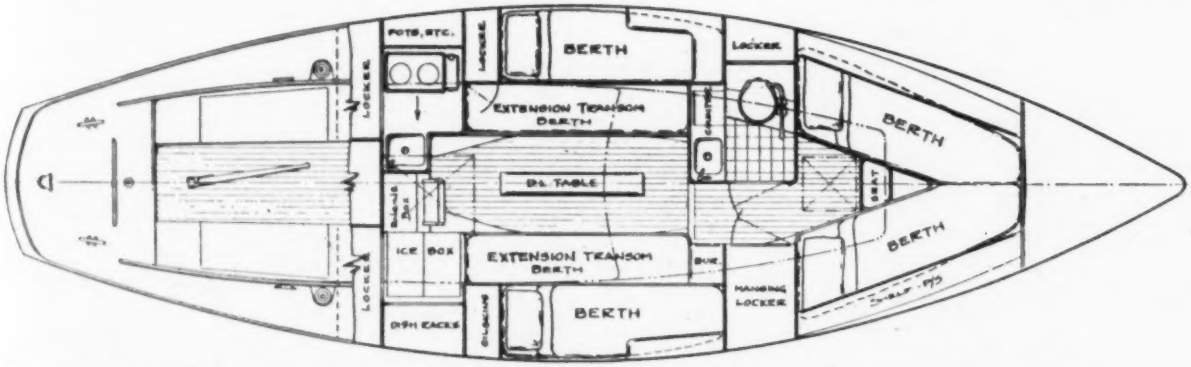
# RHODES FIBERGLASS RACER

FROM THE TALENTED and prolific drawing board of Philip L. Rhodes, has come a new concept in fiberglass design. The 33 foot *Swiftsure* is minimum maintenance ocean cruising-racer with sea-kindly lines, efficient modern rig, finest yacht fittings, and a moderate cost to the purchaser. The yacht is built in Holland by the noted yard of de Vries Lentsch and her fiberglass reinforced plastic hull is claimed to be impervious to rot, leaks, rust, and marine borers. The craft has proved able and handy in windward work and her masthead rig is simple enough for the single-hander. She sleeps four comfortably and space is available for temporary berthing of a racing crew. *Swiftsure's* C.C.A. rating is 21.5 ft. low enough to make her a serious contender in any C.C.A. or N.A.Y.R.U. competition, if she is sailed to her full capacity. Her shoal draft and keel housing centerboard reflect the trend toward versatile craft that can negotiate the shallows of local harbors as well as long ocean passages. *Swiftsure* is planned to sell at $16,985, fully found, and will be distributed by Northrup & Johnson of 366 Madison Ave., N. Y. 17.

Swiftsure is built to high standards with hollow spruce spars and Merriman fittings. Standing rigging is stainless.

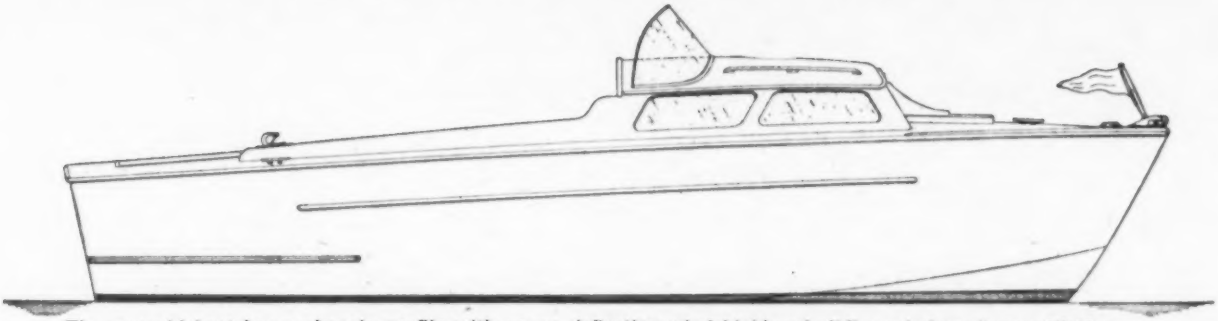


Cabin is a blending of modern fiberglass and warm traditional woods. Cabin sole and hatches are teak and all exterior trim is varnished. Centerboard is of ¾" cast bronze with a Monel wire pennant led through bronze sheaves to a Merriman winch.

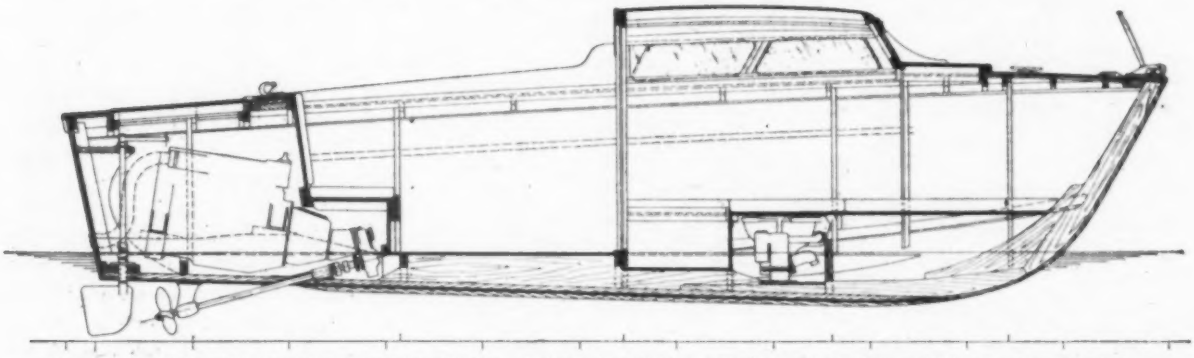



Swiftsure has unusual accommodations below for a craft of her size. She is powered by a Universal Atomic Four direct drive engine. Shaft is Tobin Bronze with Goodrich Cutless bearings. Exhaust is copper jacketed for cooling.

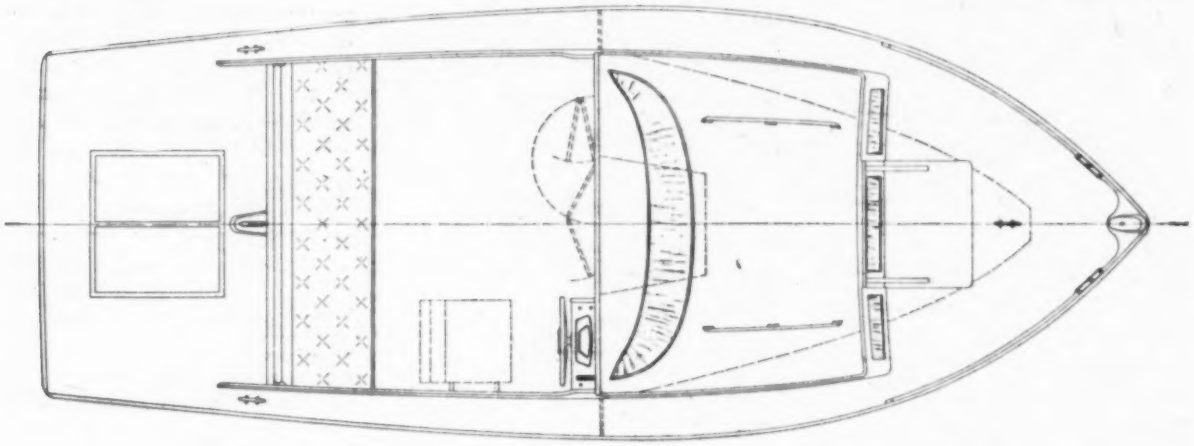
# 16 FOOT WATER SKI TOW BOAT



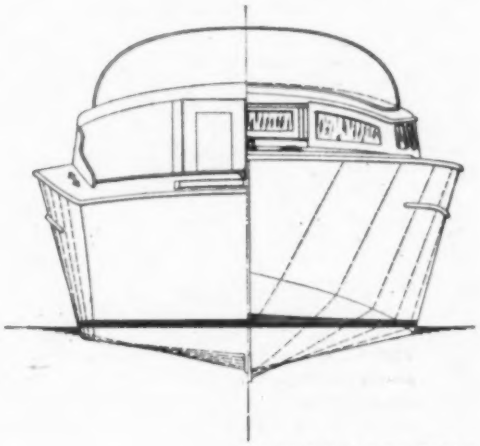
The new ski boat has a shapely profile with spray deflecting windshield and sliding windows for ventilation. Hand rails along the cabin top and a forward access hatch make for convenience in reaching the foredeck.



A safety hook for ski ropes is mounted on the forward center of the rear deck where it is within easy reach of the cockpit. Construction is of longitudinal framing planked with waterproof marine-grade plywood, covered with glass.



L.O.A. 15'10" BEAM 6'2"
L.W.L. 13'10" DRAFT 1'4"

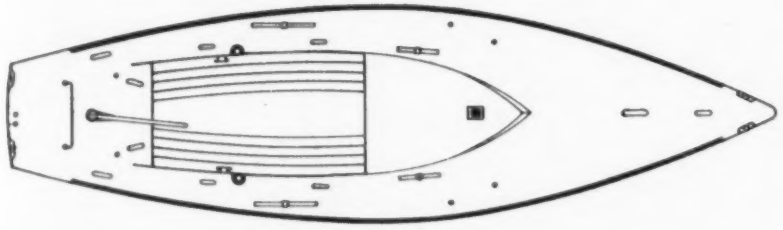


THIS FAST WATER SKI towboat was designed by Peter O. Guerke, 2050 NW 11th St., Miami, with the needs of the amateur builder specifically in mind. She is simple to construct and her cost has been kept to a minimum. With a Universal Unimite Four Aqua Pack 70 HP engine connected to the shaft through a Vee drive, she will attain speeds to 35 MPH. The small cabin has two berths for overnighting and affords privacy for skiers to change clothes. Placing the power in the rear eliminates a bulky engine box in the center of the cockpit, and provides greater lounging space. The boat can also take inboard-outboard drives.

# "KIM"—FAST 23 FOOT RACING DAY SAILER

Kim has a deep, roomy cockpit to accommodate a large party when day sailing. A permanent backstay and Merriman winches make sail handling easy. Ballast keel is 1102 lbs. of cast iron, tapered rudder is mahogany with bronze stock.

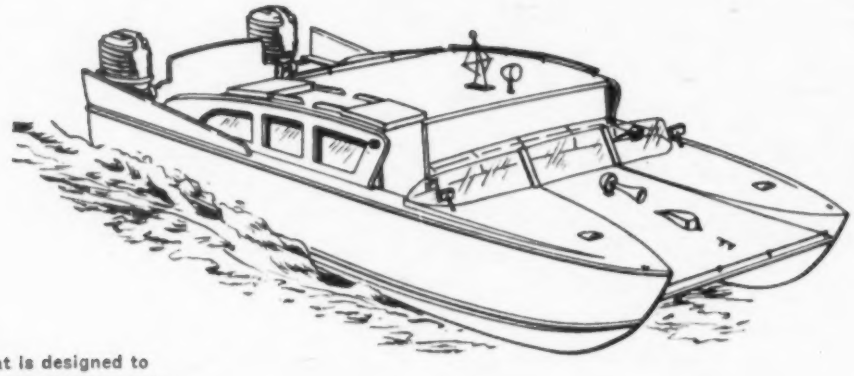
KIM IS A FAST BOAT with good sail area that should provide a lot of thrilling sailing competition if several are brought together. The trim little craft seats six persons and has a small shelter cuddy for protection when the weather get blustery. Kim was designed by Jak M. Iverson of Stockholm, and is distributed by Norge Boats of Stamford, Conn. She is built in Europe and priced at $3,000, launched and ready to go, including working sails of Dacron. The new sloop is built to highest traditional boatbuilding standards of ⅝" mahogany over steam bent oak frames. Keel assembly is of oak with spruce and pine clamps, carlings, and deck beams. All backbone fastenings are of naval bronze or stainless steel, and hull fastenings are Everdur. Cabin top is tongue and groove pine set in Alroy 703 and coated with Alroy 711, epoxy based marine paints. Running rigging is stainless steel and yacht grade manila. Standing rigging is stainless steel. Mast and boom are select Sitka spruce of hollow sections with nickel-silver track and stainless rigging tangs. Winches and fittings are by Merriman Bros., sails are by Hathaway, Reiser & Raymond. Hull finish is varnish and Alroy with all structural members soaked in Cuprinol for resistance to dry rot. She is delivered fully found, with Danforth anchor, docklines, bilge pump, flag pole, boom crutch, a boat hook, and life preservers.



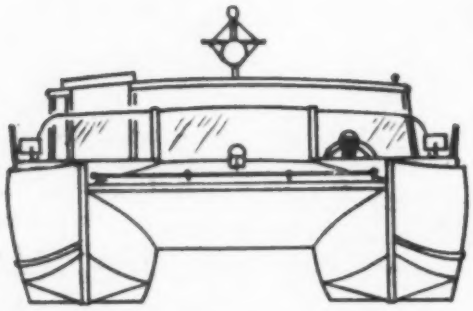
This Scandinavian craft has wide uncluttered decks with genoa tracks, cleats, and chocks generously placed for ease of operation. An outboard bracket is provided to attach an auxiliary motor for powering through calms.

| | | | |
|---|---|---|---|
| L.O.A. | 23'7" | Main | 135 sq. ft. |
| L.W.L. | 16'3" | Jib | 85 sq. ft. |
| Beam | 6'9" | Genoa | 132 sq. ft. |
| Draft | 3'8" | Spinn. | 265 sq. ft. |

# NEW CATAMARAN OUTBOARD CRUISER

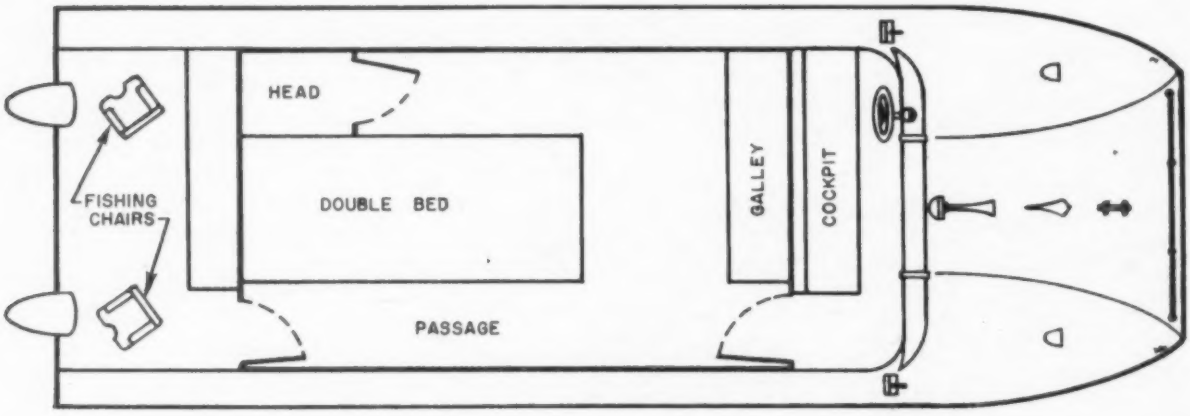


Underway, the Mercury Cat is designed to provide stable riding characteristics even in rough water and steep chop. The new craft is 28 feet overall, with a beam of 10′ 7″, 42″ freeboard, and accommodates up to 20 passengers.



The wide forward seat is designed for comfort for the helmsman, and compass and controls are conveniently placed. Deck between the hulls forms a stabilizing hydro-aerofoil in rough water.

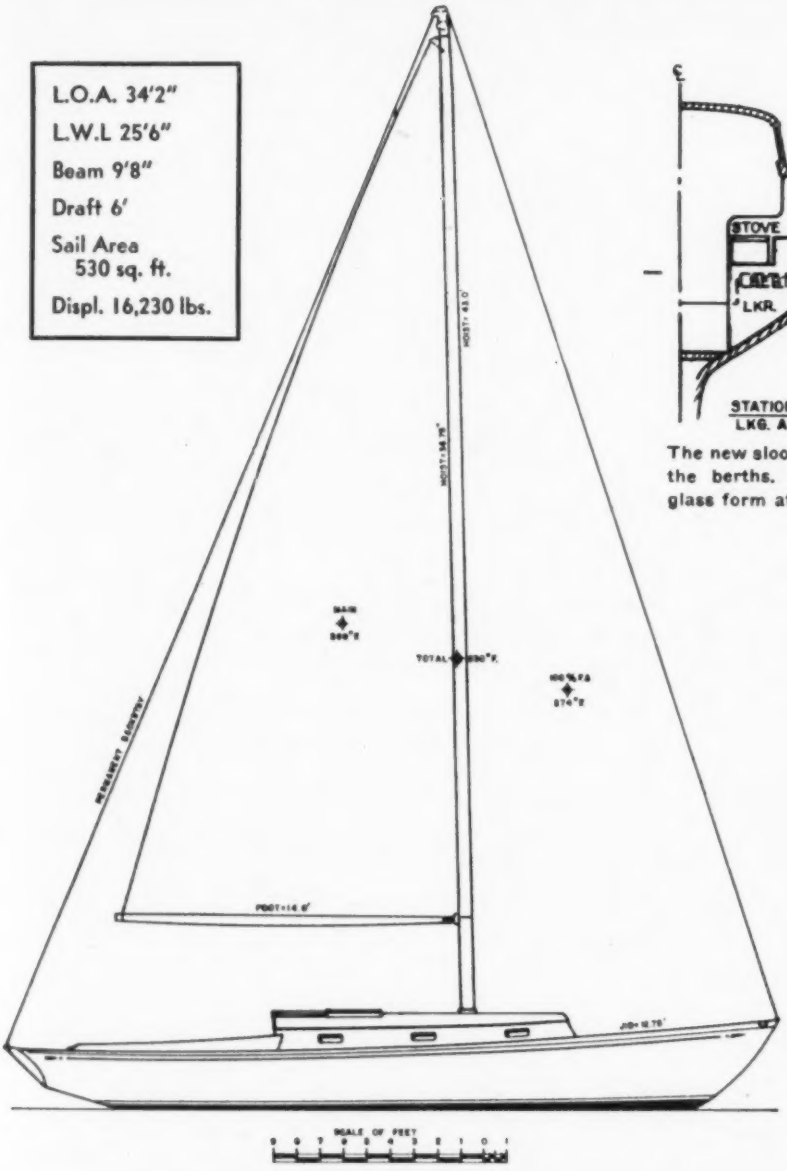
SPACIOUSNESS and safety are built into this new catamaran outboard sport fishing-cruiser, which was built by Warren Gale of Ft. Pierce, Fla., for the Mercury motor exhibit at regional boat shows. The craft was conceived to stimulate interest in twin-hulled craft and introduces a 28″ safety transom for protection against following seas. To accommodate the new transom depth, a special extra-long shaft was developed for Mercury outboards. With two 70 HP motors, the craft has an estimated speed of 28 MPH. A positive-action single cable control system uses rods inside rigid conduit for coupled steering of the two motors. The boat is constructed of fir and mahogany plywood plastic covered, with nine water tight bulkheads for strength.



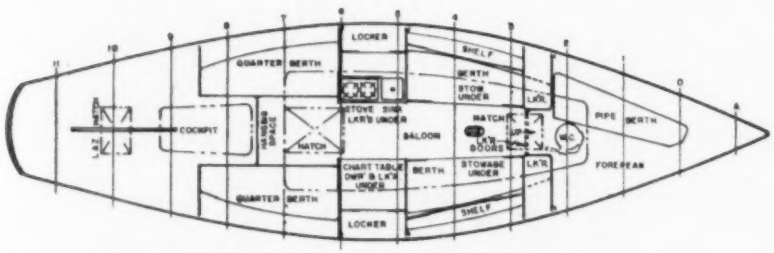

Cat constructions affords roominess not possible in conventional hulls. Interior layout offers a flexibility that can be varied to suit the owner's requirements, and space is available for the addition of electronic and navigational gear. The craft is driven from the front cockpit for better weight distribution and performance. For ideal safety this cockpit is made self-bailing, and the threshold of the forward door raised about 18 inches.

# SPARKMAN & STEPHENS SLOOP FOR EUROPE

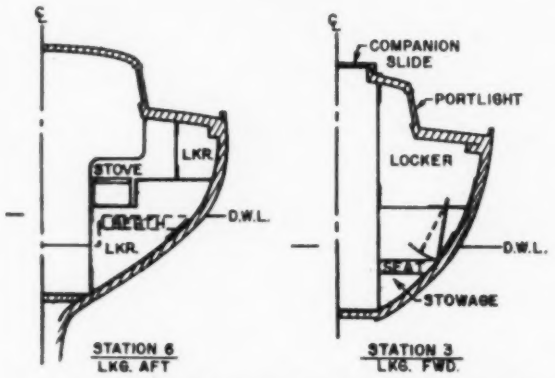
L.O.A. 34'2"
L.W.L 25'6"
Beam 9'8"
Draft 6'
Sail Area
530 sq. ft.
Displ. 16,230 lbs.




A short boom and high aspect ratio sail plan are features of the design. A masthead fore triangle, inboard rig and permanent backstay reflect the modern trends in rigging. Cockpit well is made of aluminum.




The keel sloop has a generous beam for her waterline length. Sleeping accommodations for five are possible with the quarter berth cabin plan. For the navigator, there is a chart table with stowage beneath. An access hatch provides light and added ventilation in the forepeak.

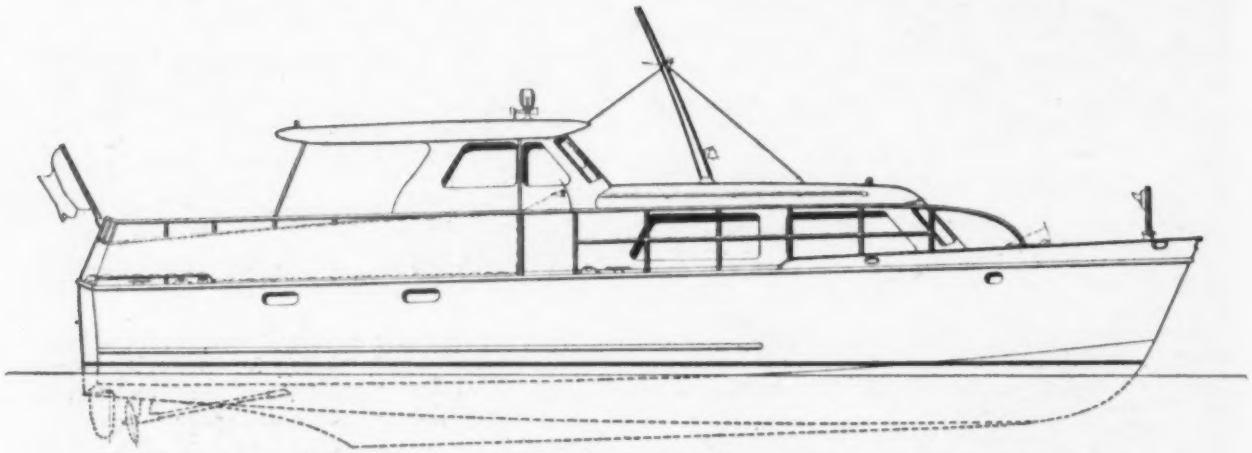



The new sloop offers generous stowage space beneath the berths. Cross sections show traditional wine glass form aft and full, bouyant forebody.

A CRUISING-RACING auxiliary for a European owner, designed by Sparkman & Stephens, is under construction at the yards of de Vries Lentsch in Holland. First grade materials are specified with keel assembly, deadwood and frames of white oak planked with mahogany. Decks are canvas covered waterproof marine plywood, trim is varnished mahogany, and all fastenings are silicon bronze. Mast is of hollow section Sitka spruce, and standing rigging is swaged Hazard Korodless. On a waterline length of only 25 feet, she packs a great deal of accommodation, with sleeping space for five persons on foam rubber. Galley equipment includes a Wilcox Crittenden two burner marine stove, and a Perko stainless steel sink. Engine compartment is ventilated with a Manhattan Marine forced air blower, and power supply is furnished by Exide 6 volt batteries. Tinned copper tanks store 15 gallons of fuel and 20 gallons of fresh water. A 12 HP Victor Coventry gasoline engine with reduction gear transmits power to a 2 blade Columbian prop for speeds to 5.5 mph in calm water.

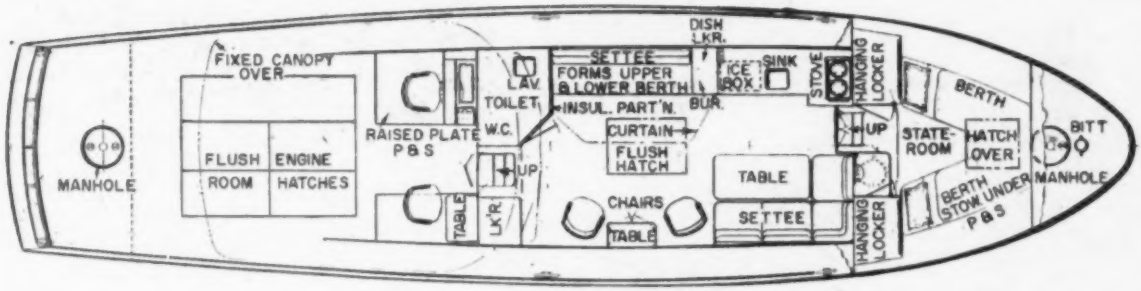
# RHODES 52′ ALUMINUM EXPRESS CRUISER

WHEN A NOTED DESIGNER like Philip L. Rhodes produces a boat for his own use, it is sure to include many innovations of interest to yachtsmen. Touché Too is a 52′ welded aluminum cruiser which was built by Paasch Marine Service of Erie, Pa., for high cruising speeds to allow Mr. Rhodes to follow the America's Cup trials for which he designed *Weatherly,* one of the contenders. The new express-cruiser is constructed of longitudinal framing with added transverse web frames, and four watertight bulkheads. The bottom shell plating is ¼″ aluminum alloy, and sides of 3/16″, with an all aluminum superstructure. Owens-Corning fiberglass is used for sound-proofing and insulation. Touché Too is similar to the high speed launches that the Rhodes organization has designed for offshore oil field personnel boats. She is fitted out with limited facilities, being primarily intended for day cruising and occasional over-nighting for owner and guests. The 52 footer is powered with two General Motors 6-71 aluminum block, turbo-charged diesels which deliver a maximum 35 mph, or a sustained 28 mph cruising speed. Touché Too has Morse controls, Ni-Bral propellers, Maxim Monel silencers, and Monel shafts. Fire protection is provided with a Kidde $CO_2$ automatic system.



Above, the new craft has a light and airy cabin with safety rails for crew protection and weather cloths to keep spray off the cockpit. The sheer line is broken by a slightly raised forward rail for added freeboard at the bow. Underwater profile shows a cutaway skeg aft and flat buttocks common in planing hulls.

The diesel cruiser, below, is fitted out for day cruising and occasional overnighting, rather than extensive living aboard. The main saloon is designed for maximum lounging space for owner and guests, with owner's double stateroom forward. A galley is located at forward, with enclosed toilet, aft, dining nook, and settee.




**THIS new and expanded POPULAR BOATING DESIGN SECTION has included a selection of craft, large and small, power and sail, intended to present our readers with new trends, as well as proven traditional practices in naval architecture. Many of the designs in these pages are available at a moderate cost from the architect, others are offered as stock or custom boats. Further information may be obtained by writing the designer or builders.— ⚓**

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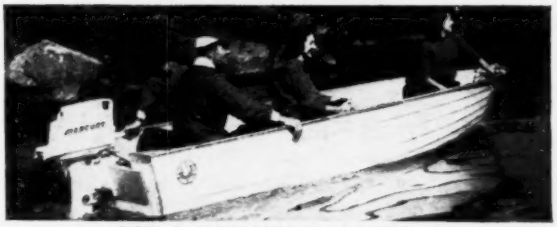

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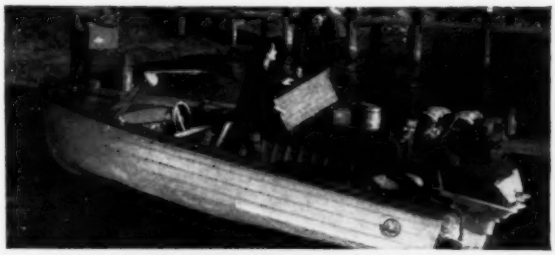

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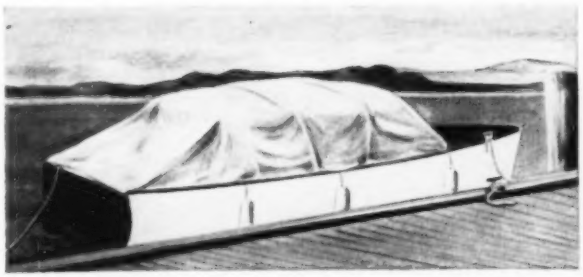

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**Take for crew some of the best and most experienced yachtsmen around. But then add a touch of carelessness while playing follow-the-leader in the dark, and a canny old competitor sailing up ahead**

By Bill Wallace

THE YEARS have gone by and, as time is the great healer, I do not believe anyone will be sore if I now tell this story. When it happened the occasion was embarrassing and damaging to the pride and reputation of a half-dozen so-called expert yachtsmen who should have known better.

But today the incident is musty, half-forgotten and memories are more apt to provoke a smile than a punch in the nose. So I will take a chance.

The occasion was a Labor Day weekend, the event a yacht race from Stamford, Conn., around the old Vineyard Sound lightship and back down Long Island Sound to Stamford, 234 miles in all. It is called the Vineyard Race, an old one sponsored annually by the Stamford Yacht Club.

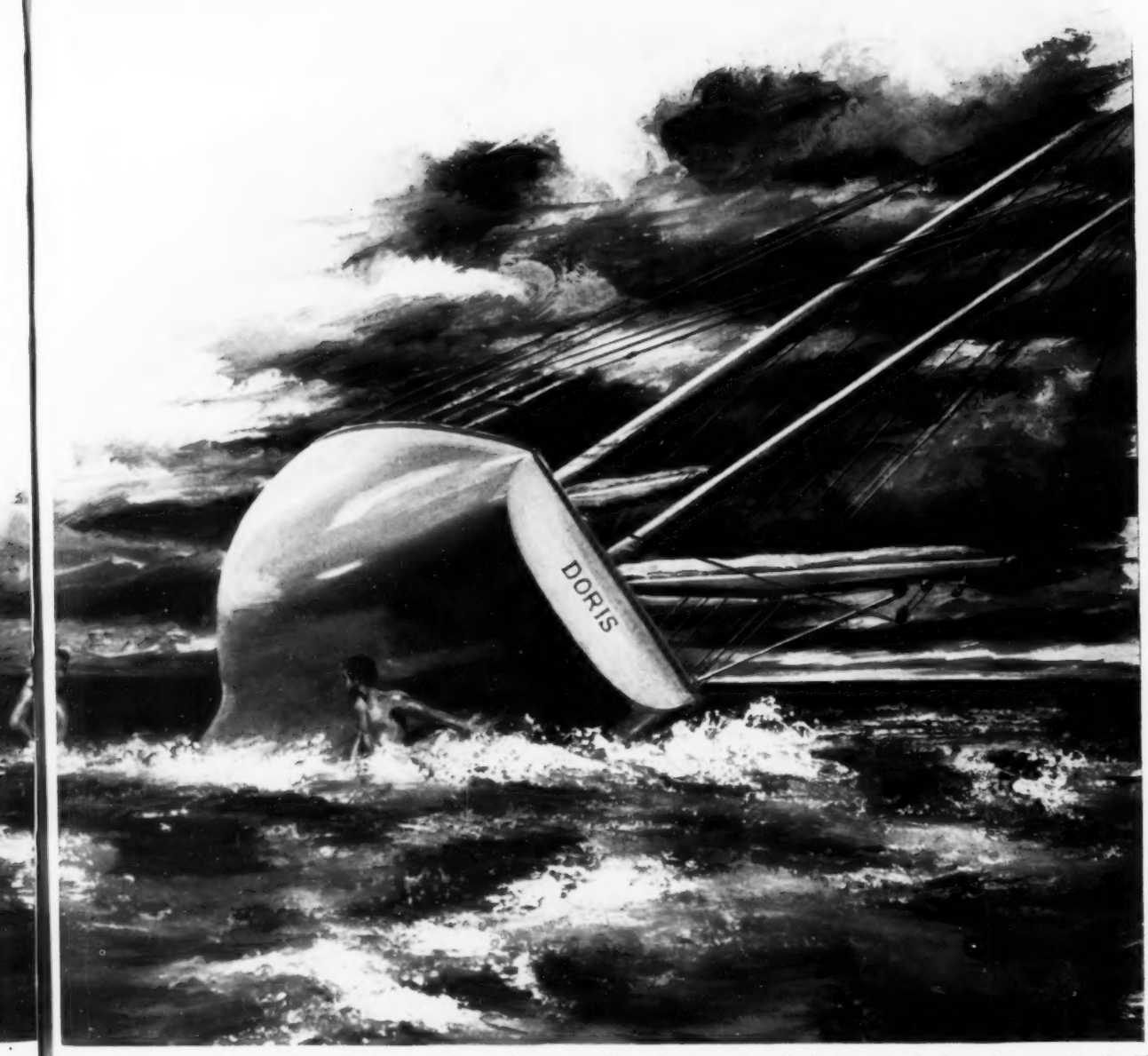
The boat was *Doris*, a lovely creature that thrived for years on care and kindness. This 63-foot white-hulled yawl was born into a silks-and-satin world and those of us who came to know her over 20 seasons on the East Coast, hope that she enjoys the same plush way of life in her new home port of Seattle, state of Washington.

*Doris* came from Sparkman & Stephens designs, was built by Henry B. Nevins, Inc., the Tiffany of yacht yards, for Richard J. Reynolds, to whose name the society gossipists always add this suffix ". . . of the tobacco millions."

In time Reynolds went on to other boats while *Doris* came into the possession of Harold M. Lane of New York, a delightful man of wealth, fine sporting instincts and impeccable taste.

I mention this pedigree because in that particular Vineyard Race we ran *Doris* aground and I do not believe that her expensive, pampered bottom had ever before touched anything more than a velvet-lined shipyard cradle.

We ran her into soft gravel on Plum Island at the eastern extremity of Long Island Sound at 1:15 a.m. on Saturday, August 30, 1952. She hit while doing eight knots with spinnaker, mainsail, mizzen and mizzen staysail all




". . . Exploring in the dark, we found her damage was entirely superficial. But what mortification!"

pulling in a 15-knot southwest breeze. So she went in pretty far, as you can imagine, and cut a furrow in that gravel large enough for an elephant's grave.

There was plenty of racing talent aboard and all knew about Plum Gut. They had been through it enough times because the Gut is the main drag in this part of the nautical world. To get into or out of Long Island Sound en route to Shelter Island, Gardiners Bay, Block Island and points East, one usually goes by way of Plum Gut, especially when the five-knot current is favorable.

But familiarity breeds contempt, especially when chasing *Nina*. Who is *Nina*? A famous 30-year-old schooner belonging to Commodore DeCoursey Fales, a magnificent old salt with the nerve of a riverboat card sharp who also happens to be a New York City bank chairman.

We were chasing *Nina* that night, flying down the Sound on a spinnaker reach, the two of us at the head of a fleet of 31 yachts. *Doris* had to give the smaller *Nina* some 10 minutes of handicap time so we were pressing to keep Commodore Fales within overtaking distance.

Yacht racing at night is wonderful with a boat up ahead going to the same place. You merely steer by the guide's lights, if any, and follow. The hell with keeping a compass course. That is what we did—fatally.

A few degrees on the compass of a sailing vessel at night can easily become indistinguishable and the helmsman who says he can maintain an errorless course during a full watch is a liar.

So when *Nina* cleared Plum Island to the satisfaction of her skipper, the helmsman took her east by north those 1-2-3 degrees, an imperceptible left turn absorbed without notice to the rear.

Meanwhile back on *Doris*, I was up in the bow with another lookout trying to pick up a red nun buoy as a dead reckoning check. We never did find it. My companion had a powerful flashlight and we poked it over the port side. The water looked brown, bottom brown, and out there

continued on next page

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## FULL SPEED continued

about 100 feet—why isn't that grass and weeds and sand? All right, Plum Gut is narrow but not this narrow.

The flashlight operator started aft to tell the helmsman. Because there was a lot of canvas up and we were moving, it was noisy and the message had to be walked rather than shouted back to the cockpit. The warning never got aft of the mainmast.

As we hit, it was strangely quiet on deck. We just slowed down as though someone had eased the power to hydraulic brakes. The water stopped going by and the sails, still full, heeled the yacht over so the rail was under water.

Down below, it had not been quiet. The other watch said the yacht's entry into the gravel sounded like an artillery battery of 105's firing a barrage. That was the gravel rattling against the keel and hull. The others came bounding out of their bunks up the main hatch, frightened, uncertain.

*Doris* did not sink, in fact her damage was entirely superficial. But what mortification! As we lay there in four feet of water on the north side of the Gut, the whole racing fleet sailed through. They could all identify us. "Yeah, that's *Doris*. Whole bunch of Manhasset Bay hot-shots on board. International class skippers. Think they sail an ocean racer like a small boat. Well, look at them!"

At first we tried to hide. "Let us not advertise our plight," said Mr. Lane and ordered all lights extinguished. But up from behind running lights came closer, right on our stern. It was *Gesture*, halyards clanking against her aluminum mast, the trade mark of this 56-foot sloop.

On *Gesture* they had made out our white hull form, they believed us to be still sailing and so were steering by our position just as we had "followed" *Nina*. They thought they were overtaking us, correct, and planned to pass us to port, incorrect. Plum Island unfortunately stood athwart such a course and *Gesture* would soon cleave said island. Mr. Lane said, "We better light up," and so we did with everything available.

Recognition came fast on *Gesture*, 100 feet away. Winches screamed, expletives rent the air, the button with "Panic" on its nose was pushed. *Gesture* swung by our starboard quarter and went through without incident.

Did Fales carve the course just as tight as he could, figuring this might possibly put us up on the beach? It would not be unethical nor immoral to do so and Fales is a competitor in every way. But to ask the commodore about his strategy would elicit no straightforward answer, rather a bunch of winks, sly smiles, free drinks and double talk. The commodore is that kind of a fellow, the Casey Stengel of the yachting world.

*Nina*, incidentally, went on to win, the third of five victories for her in the Vineyard Race.

George R. Hinman of Sands Point, N. Y., veteran yachtsman of proven skills, current commodore of the New York Yacht Club, past president of the Yacht Racing Association of Long Island Sound, a director of the North American Yacht Racing Union and a member of its rules appeals committee, was aboard *Doris* on that trip. In races, he was by Mr. Lane's invitation, the skipper of the boat and the recruiter of much of the yawl's crew from his home yacht club, Manhasset Bay. Although he was not on deck when *Doris* went aground, Hinman for awhile showed great concern for this folly.

"We were lucky we did not hit rocks," he said. "The boat is not damaged. But for heaven's sake, let's forget about it." Sheepish and chagrinned, we decided not even to talk about our voyage, just pretend the memory will go away, pretend it never happened.

But it did happen and we all "learned about boating from that." The lessons? Never sail through Plum Gut in a casual manner. Never steer by following another yacht in shoal waters. Maintain a compass course and take bearings to check that course. Never be complacent. Never fool with that *Nina*.

—BILL WALLACE

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*Left: Trim, beautifully-styled Pacemaker 40-footers are available in three models*—The Standard Express, The Sport Fisherman (*with a flying bridge*), *and* The Deluxe Convertible Sedan. *Beam is 12'7", draft 2'11". Prices begin at $19,300 f.o.b. Lower Bank, N.J.*

*Below: Pacemaker's 29 and 33-foot Sea Skiff Cruisers feature a Formica-top dinette which seats four in complete comfort, flush cockpit floor, full-head-room companionway and ample stowage space for long pleasure cruises and fishing trips. Prices on single-engine 29-footers start at $8200 f.o.b. Lower Bank, N. J.*

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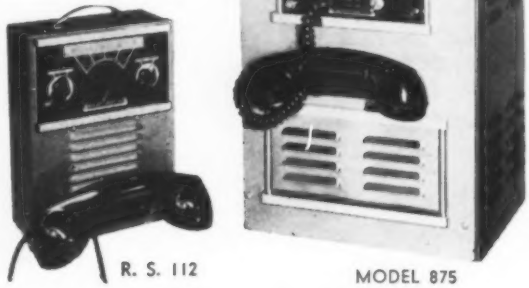

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# MORE SPEED for your BOAT & ENGINE

## Hull designs—and their influence on your boat's performance—are explained in this installment

By Hank Wieand Bowman

THE ball park hawker's "You can't follow the game without a program," gets to be a bore but it does make sense. The same words of advice apply to boating. In the search for more speed from your boat, you must have a knowledge of the factors affecting speed on water, the various types of hull designs, and the terms used to describe them. To make sure that you know your flare from your sheer, or a round bilge from a hard chine, we'll explain these and other words and phrases as they are used in this *more-speed* series.

There is no one best type of hull for every purpose though some hulls are superior for certain uses. All boats belong to one of three basic types: displacement, semi-displacement or semi-planing, and true planing hulls. Each of these may be made faster by three different methods or a combination of them. You may: add more power, modify your hull design, or restore the hull to its original condition.

The displacement-type hull is used in many large cruisers, houseboats, and most commercial craft. But in the past thirty years, the displacement design has had little or no application to small craft or to boats designed wholly for speed.

Smaller cruisers and inboard and outboard runabouts are usually of the semi-planing type, either with modified-V or

**Heavy commercial craft and slower pleasure boats displace water equal to their weight and must push it aside to move. Note wave pattern along barges above.**

round bottoms. Other designs used in the semi-planing group are inverted V and catamaran. The true planing hulls, designed almost wholly for speed alone, are monoplanes (runabout type), single and multi-step hydro-planes, and hydrofoils.

The word *step* applied to a hydroplane refers to a transverse break in the bottom surface, as opposed to a lap, which is a longitudinal break.

The displacement hull pushes aside or displaces a weight

of water equal to the gross weight of the hull when the hull is in motion. At rest, all boats displace an amount of water equal to their gross weight. By this we mean that if you weighed the amount of water it would take to fill the dent in the water's surface made by any boat at rest, this weight would be exactly the same as the hull with its load of gear and passengers. This applies to a racing boat in exactly the same manner it applies to a tug. Once underway, however, the difference in design is immediately apparent as a new set of factors comes into play. As the displacement hull gains speed through the water, its bow pushes aside waves that roll along the side of the hull. The length and shape of the waves along the side of the purely displacement design are created by the forward thrust applied to the hull from engine power and propeller, and also by the length, beam, and bottom and side design of the hull. In general, the true displacement boat may be made faster only by increasing your power or decreasing the beam.

A number of different resistances occur to cut down the potential speed of any type of hull. As a displacement-design hull, gains momentum through the water, the water passing along the sides and over the bottom offers a frictional resistance termed *skin friction*. Any imperfections in the bottom and side surface of the hull, appendages such as rudders, shafts, water scoops, water speedometer pitot tubes, and marine growth break up the smooth flow of passing along the sides and under the bottom offers a friction. *Wind resistance* has a lesser effect as an efficiency robber but it is increased by all parts of the hull and superstructure above the water.

As waves are formed along the length of the hull, a *wave-making resistance* is encountered. This is separate from skin friction and, at low speed, this resistance is of little importance. However, as speed increases, the wave resistance has more and more noticeable effect on the efficiency of the hull design.

In 1881, R. E. Froude, during a study of wave-making resistance, discovered after lengthy experimentation with towed models and full scale ships that the resistance was least when the crest of the wave formed at the bow reached the stern as a trough of a wave. At any constant speed the wave pattern along the side of a displacement hull will remain constant and will show as a series of humps and hollows nearly static in their position. Though in general the wave making resistance increases as the speed of the displacement hull increases, fluctuations do occur and the boatman can use these fluctuations to his advantage.

By observation at different engine r.p.m. (revolutions per minute), you can note whether the wave at the stern section of your hull is cresting, or reaching the stern at a trough period. By varying the engine speed slightly, it is often possible to bring the echo of the bow wave to the stern in a trough condition so as to operate at a lesser *wave-making resistance* and hence effect a fuel savings or an increase in speed through lessened wave resistance.

Since *skin friction* and *wave-making resistance* are the

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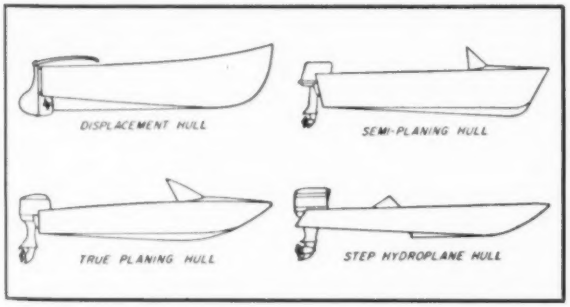


A hull which, when enough power is applied, can lift up and travel along the surface of the water, is said to "plane" and is capable of high speeds.

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SPEED continued

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As planing efficiency increases, water will correspondingly tend less and less to close around the stern. Instead, the waves following along the hull sides will meet farther and farther aft of the hull. The perfect planing hull would have no wave-making resistance and, as a result, there would be no following waves closing in across the stern.

The disturbed water aft of a boat in motion is usually referred to as the *wake* but we don't employ that word in connection with wave-making resistance, for technically "wake" is something entirely different. It is actually water set into forward momentum due to the action of the water pressure on the hull, as distinct from water moving aft due to propeller rotation and other forces. If you suddenly stop a boat, the boat's wake causes the sudden forward surge. With an outboard it may even slosh over the motor cut out on the transom.

Four principal forces react on the semi-planing hull. These are: the gross weight, which tends to push the hull downward in the water to cause it to revert to a displacement form; the propeller thrust offering a forward movement from stern to bow; lift, which pushes the bottom of the hull toward the water's surface; and drag, tending to slow the hull, which is a composite of the resistance forces listed for displacement craft, though lessened because of the more efficient design.

The semi-planing and true-planing hulls gain their attitude on or near the surface of the water from dynamic reaction of the shape of the hull bottom conforming to that

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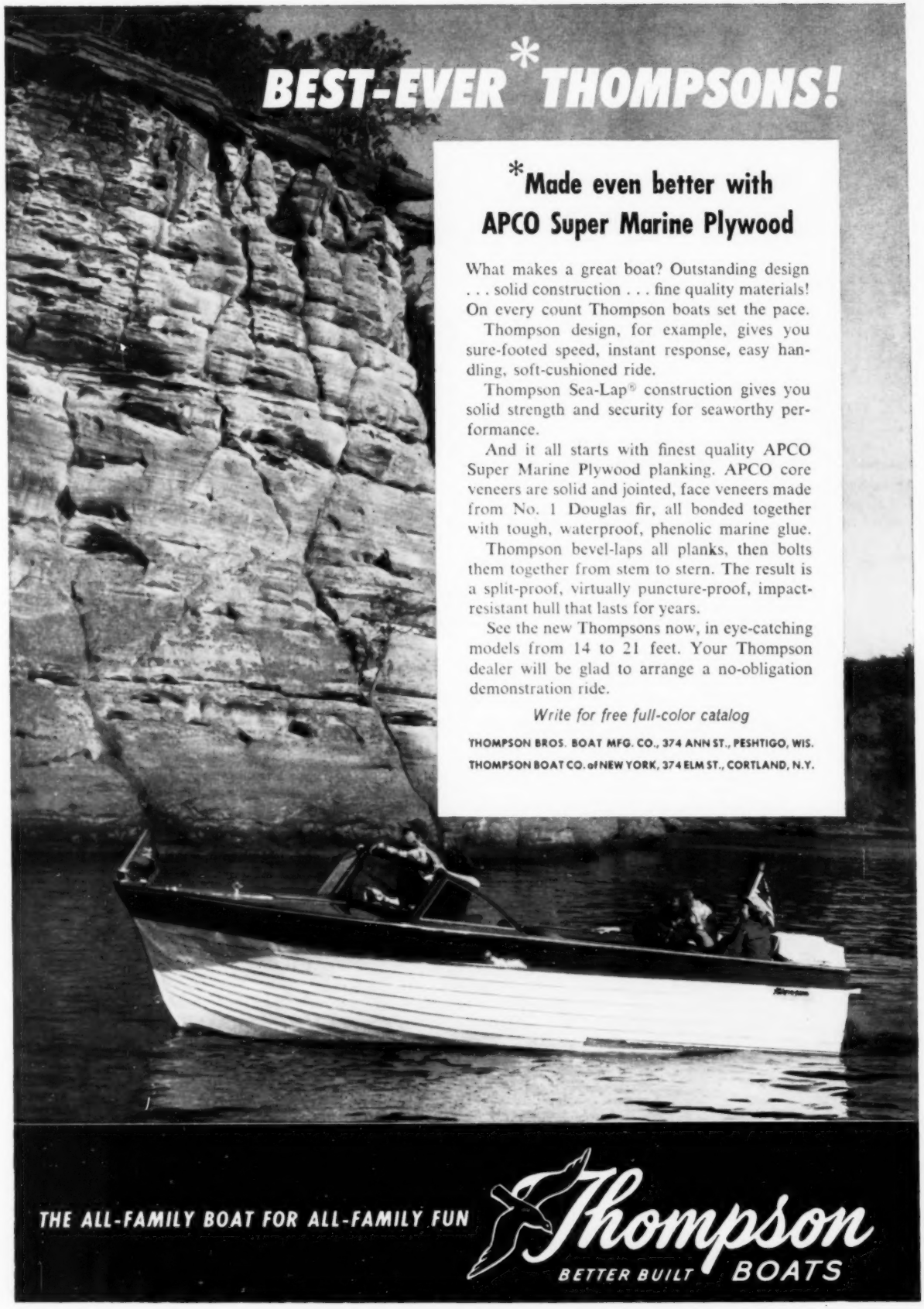
of an air foil, though taking advantage of the far greater lift obtained in our denser-than-air water medium.

We mentioned different types of semi-planing hulls. The most commonplace of these is the modified-V design. Looking at the modified-V hull from stern toward the bow, the bottom is seen to be composed of two planing surfaces. These are joined at the keel line (the fore-and-aft centerline of the hull). At the stern the two surfaces are on nearly a single plane like a broad spread V nearly approximating 180 degrees. However, as the two planes extend toward the bow, you will see that the V becomes increasingly narrow. The angle of these planes from horizontal is termed *dead rise.*

The amount of *dead rise* in a hull can vary from zero degrees if the two planes form a completely flat surface to nearly ninety degrees. In the modified-V hull, this angle is not consistent but, as already described, the amount of dead rise increases toward the bow.

SPEED continued on page 140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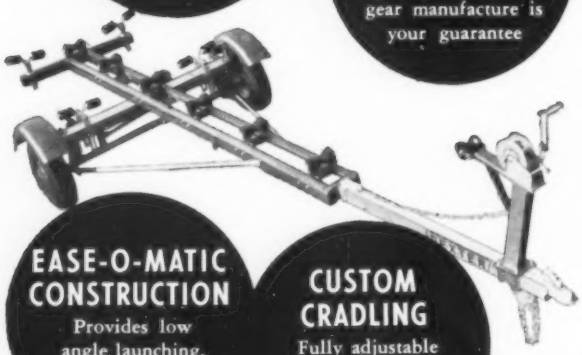

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SPEED continued

The *chine* is that section of the hull where the sides and the bottom meet. The design of the chine has an effect both on speed and riding characteristics of any boat.

The round bottom semi-planing hulls, unlike the modified-V design, do not have a consistent angle of dead rise at any given athwartships location, but rather the bottom is curved so that the angle of dead rise increases as the distance from the keel-line toward the chine line increases. The round bottom hull may have no clearly defined chine-line since the sides and bottom may be unbroken in a smooth radius or compound radius from keel to sheers (the strength members at the top of the sides of a boat).

Though the modified-V and round bottom are the most commonplace of the semi-planing types, two other forms are also used. One of these, the inverted-V design, is basically the reverse of the modified V. If you were to take a typical modified-V hull, cut it down the center line, put sides on these half sections and join the halved hull's outer sides, you would closely approximate the inverted-V configuration. The inverted-V incorporates a slight amount of negative dead rise at the stern, increasing in negative angle toward the bow.

The inverted-V is sometimes termed "Sea Sled," the name originally applied to it by its designer Albert Hickman. When viewed bow on, it has a tunneled appearance.

The inverted-V type hull is closely related to the catamaran or twin-hulled boat that is, in essence, two hulls joined together but separated by a fore and aft tunnel. The twin hulls can be of modified-V, round bottom, or the catamaran design can readily be applied to a true planing design in a search for a faster type hull.

The true planing runabout has a monoplane bottom. From chine to chine the bottom surface aft is completely flat, though wedge shaped, lacking any dead rise to a point well forward of the hull's *center of gravity*. The center of gravity of the planing hull, or the center of displaced water volume, is also the center of buoyant pressures which effectively keep the hull on plane.

Two distinct forces react on all hull designs, though the effect of these forces varies considerably with design. These

Skipping along with only the forward sponsons and lower half of prop touching is this 3-point hydro.

are *dynamic reaction* and *buoyancy reaction*. Buoyancy reaction is the force that floats any lighter than water object at rest. When not underway, any hull will sink in the water to that point at which upward pressure of water, which increases with depth, equalizes the downward pressure of the inert mass. When the upward and downward pressure are equalized, the hull is floating and has displaced, you will remember, a weight of water exactly duplicating its gross weight. As a hull begins to move, water under it is accelerated from an inert condition and *dynamic reaction* begins to apply. The accelerated water creates a lift in direct proportion to its acceleration. As speed increases, the true planing hull becomes less and less dependent upon *buoyancy reaction* until this lift is nearly negligible. This water acceleration lift, or *dynamic reaction*, takes on the job of keeping the hull's weight on the water's surface.

At high speed on disturbed water, the monoplane-type

SPEED continued on page 142

Photographed at Beautiful Cypress Gardens

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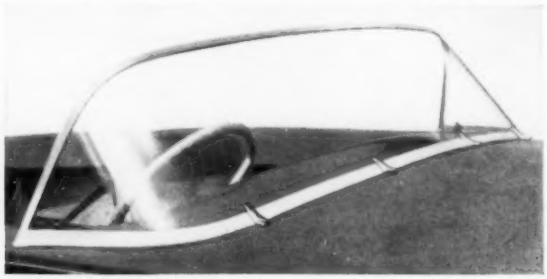

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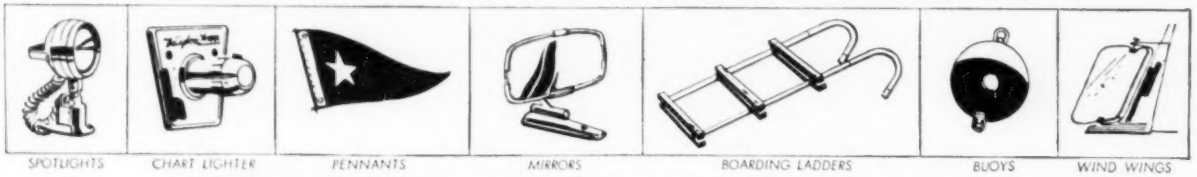

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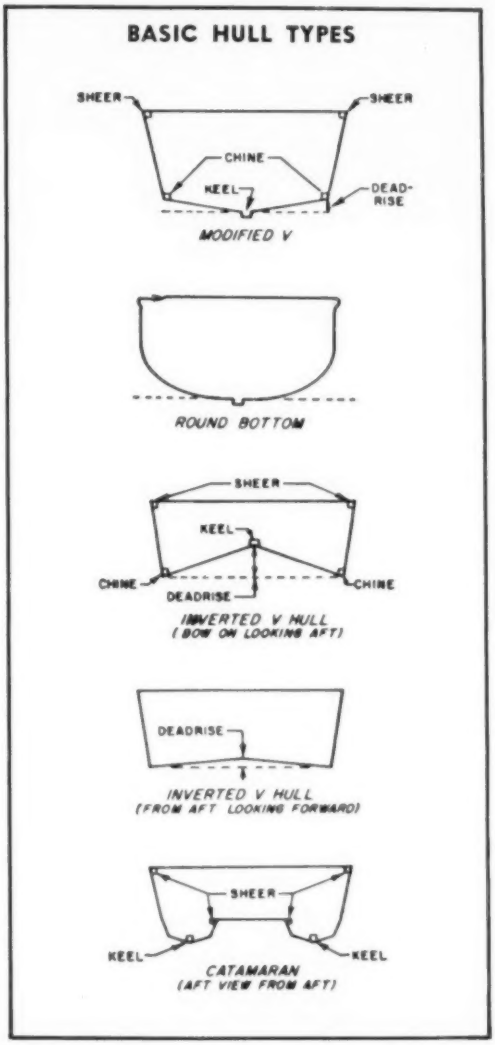
SPEED continued

planing hull tends to porpoise—that is, the bow lifts and drops with a spanking motion. The planing efficiency of a porpoising hull is reduced, since the planing surface for-




ward of the transom, in effect, is swung up and down, presenting a relatively level surface parallel to the water when the bow is down, and an angle when the bow lifts. As the bow lifts and the planing angle becomes more acute, the planing surface, in effect, acts momentarily as a brake. However, as the angle increases, it accelerates a downward motion to the water flow. At that instant the old rule of "equal and opposite forces" comes into play, and the stern is lifted and the bow thrust down again. This erratic dynamic reaction makes for an annoying ride at best, and if the porpoising is violent, as frequently occurs in monoplane racing craft, the stability of the hull is reduced to a danger point. Only a shift in weight, modification of the propeller thrust angle, or a reduction in speed will stop the porpoising.

When it was decided that two rather than a single plane would offer better balance, and two rather than one planing platform would eliminate a porpoising tendency, the single step hydroplane was developed. This design offers two riding surfaces, one at the stern as with the monoplane design, plus another forward of amidships. A later development of the stepped type design has been a modification to three planing surfaces to offer greater lateral stability. The first approach to a three-point design was that of two planing surfaces aft and one forward. This was accomplished by the

sin,ple expedient of broadening the beam aft and building two separate aft planes plus one forward. However, since the three-point suspension (as the three-planing surface

The author got nearly 70 mph from this experimental Ted Jones combination of racer and pleasure runabout.

design is called) was intended for high speed, further development resulted in a shift of the two planes forward with one aft, making use of a tunnel between the two forward planing surfaces (sometimes referred to a sponsons) to gain aerodynamic lift.

The three-point hydro design with two planing surfaces forward and one aft has another advantage in addition to making use of both hydro- and aero-dynamics. Since the sponsons are separated, the water passing aft between the two sponsons is not overly disturbed, so the propeller, normally centrally located, can operate in relatively undisturbed water and be less prone to cavitate (that is, turn inefficiently in air blended water offering less thrust).

The final refinement of the three-point type planing hull is the design referred to as the "prop riding" hydro. At slow speed this hull is a three-pointer in its planing support. However, the balance of the hull is such that with a specially designed propeller, the boat virtually flies over the water's surface, balanced only on the propeller as a single lift aft, and supported forward aerodynamically. The hull will occasionally dip, because of twist due to propeller torque, onto one or the other forward sponson, but dynamic reaction almost immediately causes that sponson to lift again and become air supported.

The final true planing design is the hydrofoil. The lift or planing characteristics of this design are more closely linked to aircraft than any of the other designs other than the prop riding hydro. The hydrofoil type hulls are actually flying boats. Several hydrofoil surfaces, not unlike airfoils or aircraft wing sections, are secured to the hull by outriggers or struts of varying types. At rest, the hydrofoils are well under water. However, as the hull gains speed by any propulsion method—submerged propeller, air propeller or jet stream—the hydrofoils lift the hull until it is completely free of the water. The only drag other than wind resistance is from the submerged foils, propeller gear box and lower unit on an outboard installation; or from struts, shaft, and rudder on an inboard powered hull. The hydrofoil principle has long been proved effective in creating a stable ride over rough water. However, most experimenters with dynamic lift from submerged foils have hoped to find higher speed-per-horsepower-expended by the power plant. To date, hydrofoils have proved a disappointment as far as high speed is concerned, for though resistances of the hull through or over water are largely eliminated, skin friction of the foils and eddy resistances of propulsion appendages still exist.

For maximum speed per unit of power with propeller driven craft, the prop riding three-pointers have thus far been most successful. However, high speed on water is seldom gained without sacrificing durability, stability or both. You can't have your cake and eat it too, even in boating.

So now you have some basic whys and wherefores of better performance. In the next installment we will start to put them to good use. *Next month:* MOTOR HEIGHT AND TRANSOM ANGLE ADJUSTMENTS.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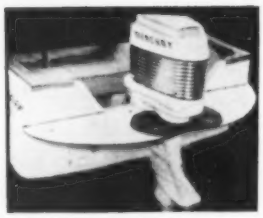

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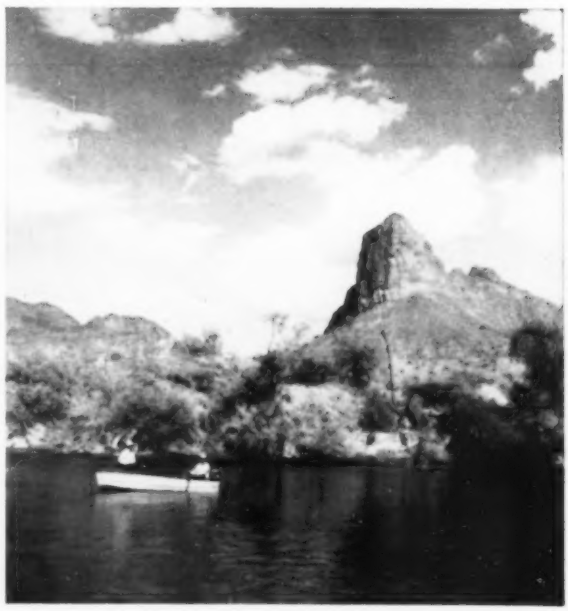


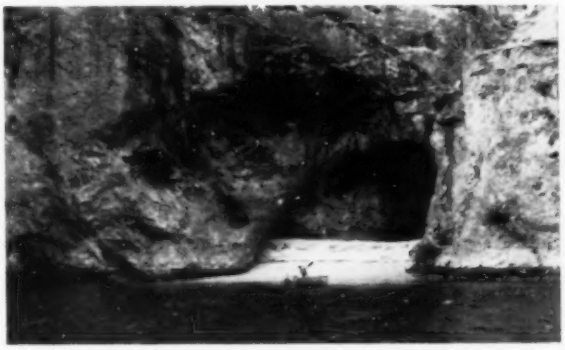
Typical of the landscape viewed by fisherman below Parker Dam, Arizona, the river here also offers a 12 mile straight run for water skiers.

By Charles C. Niehuis

WHEN LT. JOSEPH C. IVES navigated his *Explorer*, a 57-foot steam-powered, steel-hulled, stern-wheeler from the Gulf of Lower California up the Colorado River and into the lower reaches of the Grand Canyon in Arizona 100 years ago, this determined man encountered an endless series of rapids. His craft had a steel hull, reinforced with timbers, but in spite of this added protection, gravel and boulder bars soon took their toll. The *Explorer*

ran up on a big boulder and stove in the hull, dislodging machinery and boiler.

Later, Lt. Ives made a second trip. Abandoning the idea of using a boat, he traveled overland to finally stand on the South Rim of the Grand Canyon. It is said that he looked down on the river running red with mud, thousands of feet below him, and made the comment that he was probably



Sheer cliffs of Lake Mohave dwarf the boating fishermen, center, who have been lured here by the colorful home of 10 to 18 pound trout.

the first white man to look down into the gorge and no doubt would be the last.

How wrong he was!

But even when I first saw the Colorado River, the water in it was too thin to plow, yet still too thick to drink—it was that full of silt.

COLORADO continued on next page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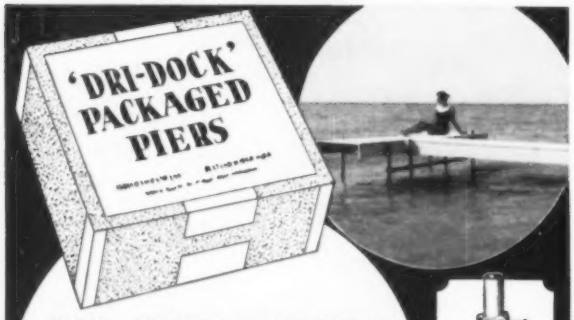


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Largemouth bass, like these exhibited by the author, vie with crappie, channel catfish, and trout for the hooks of boatmen who mix fishing with sightseeing.

That was before the dams were built to form Lakes Mead, Mohave, Havasu, Martinez and Laguna Reservoir.

Hoover Dam, in Boulder Canyon where Ives' *Explorer* stove in her hull, was the first completed. It backed water up into the lower portion of Grand Canyon for 115 miles. The head of Lake Mead just about reached the area where Lt. Ives stood and made his comment. The rising level filled thousands of coves, and the expanding lake spread out to fill the Virgin River, Grand Wash and Hualapai Wash Basins.

The impounded river soon dropped its enormous loads of silt at the head of Lake Mead, and the changes that followed down the river, where it forms the mutual boundaries between Nevada and Arizona, and California and Arizona, were beyond the fondest predictions.

The red river became a crystal blue; the flow was stabilized. Soon other dams were built: Davis Dam formed Lake Mohave, some 65 miles long; Parker Dam backed up Lake Havasu for about 70 miles; Imperial Dam created Lake Martinez, with its miles and miles of tule-lined channels and hidden bayous.

Only the stretches of the river below each of the dams and above the lakes retain some of the characteristics of the old, turbulent Colorado as Lt. Ives found it. The current in these stretches still is swift, a few of the rapids remain, although tamed considerably, but the water is clear.

And all of the lower Colorado River, from the head of Lake Mead to the Arizona-Old Mexico border, has become a boater's paradise.

I made my first cruise down the river in 1942 with Bud Fox, a ranger from the Arizona Game and Fish Commission. A herd of wild burrows hee-hawed a fanfare as we embarked from Willow Beach, then in a completely primitive state. Bighorn sheep looked down on us as we were whisked through the Cave Rapids. Coyotes serenaded us in camp at night. And, as we boated down the river, beaver ahead of us slapped their warnings on the water. Ducks, geese and coots rose from the river at the roar of our outboard motor.

Things have changed since then. Willow Beach is developed and caters to the needs of several thousands of trout fishermen each year. El Dorado Canyon, once a mining camp, and the old Searchlight Ferry have been developed into fishermen's and boater's camps. Katherine Wash, on

A marina, right foreground, as well as trailer court and motel are part of this development where Lake Havasu separates California and Arizona.

lower Lake Mohave, has been the scene of a half-million dollar development to serve boating and water skiing enthusiasts.

All these improvements have been made in the last 15 years, but the wildlife still remains. Much of the Colorado River is administered by the U. S. Park Service and the U. S. Fish and Wildlife Service. Added, too, is fishing for largemouth bass, crappie, channel catfish, and trout.

Lake Havasu is destined to be the fresh-water playground of southern California's vast metropolitan areas. Site Six, on the Arizona side, an Air Force rest camp during World War II, has been converted into a sportsmen pilots' fishing camp. Havasu Landing, Road's End, and Black Meadow Landing on the west shore, are the embarkation points for thousands of boating Californians.

On lower Lake Havasu, out on the Bill Williams Arm on the Arizona side, just above Parker Dam, is one of the major developments on the whole Colorado River system. George Savard, soldier of fortune and plunger, has fought his way with dynamite and bulldozer through a series of mountain barriers to reach a peninsula, which he has flattened, filled and drained. He is developing it into one of the most luxurious marinas and resorts located on fresh water in the Southwest.

Even the short section of the Colorado below Parker Dam, between Parker, Ariz., and Earp, Calif., has seen a most intensive development in the last 15 years. Now there are nearly a half hundred trailer courts concentrated here, lining both banks of the river and supplying the needs of thousands of boaters and followers of water sports. Each season vacationers from every state in the union are represented here, fishing and skiing.

The Colorado River below Parker ranges from primitive sloughs and backwaters to the highly developed Fisher's Landing on lower Lake Martinez.

If Lt. Ives were to return now, he would find the Colorado River a much different place. In place of the rocks, rapids and desolation, he would find thousands of boaters in everything from kayaks to hydroplanes, plus accommodations ranging from marinas and fishing camps to air-conditioned, completely furnished motels. His sternwheeler would be a museum piece now, for cruisers, inboards, outboards, sailboats and canoes are now to be seen the length of the Colorado. There's racing, water skiing, fishing, hunting, campboating, and just plain getting-away-from-it-all boating with the warm sun overhead and the blue waters of the Colorado River beneath.—CHARLES C. NIEHUIS


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# The Facts That Foretell FOG

**By studying the simple instructions given here, any boatman can learn to anticipate this common menace to visibility and navigation**

By Nicholas Rosa

FOG IS ONE of the worst nuisances in a boatman's life, and this is an understatement. Fog brings the positive danger of collision or running aground, the chance of getting lost, and the probably ruination of the fun for yourself and your guests.

It's the unexpected fog that causes the trouble. A competent skipper can cope with fog, because his "blind" pilotage and seamanship are dependable, but more than that, he knows it's coming. He beats it home—or wisely stays ashore in the first place.

Some people develop a "nose" for fog and other bad weather as a reward for years of watching the signs and guessing about it—and being heartbreakingly wrong time after time. There is a better way of doing it, and it takes no black magic. There are some reliable principles that practically anybody can learn to use.

"Is fog coming? When? How heavy will it be? When will it disappear?" To find the answers, you have to know something about the causes of fog, and there is a handy gadget you should learn to use.

*Fog* is made up of innumerable tiny water droplets, too small to be seen individually, too light to fall and get out of the way of visibility. There are several kinds, with importantly different causes: *radiation fog*, which forms locally, and is easiest to predict; *advection fog*, which "rolls in" from somewhere else; and *frontal fog*, which accompanies storms. If you do your boating on a lake in high or hilly country, you may get *upslope fog*.

Before you can understand any of these, you must be acquainted with *water vapor*, *relative humidity*, and also *dew point*, which is a temperature, and you will get the jump on many fogs simply by keeping track of it.

*Water vapor* is a gas, the *invisible* form of water (what you see coming from steam whistles or hot soup is not vapor, but fog!). It is evaporating at all times from streams, lakes, oceans, the wading pool in your yard, and even ice. There is always some of it present in the air, even on "dry" days.

A particular sample of air will hold only so much water vapor at any given temperature. Warm air can hold more water vapor than cold air, so for the same amount of vapor, the air will seem dryer if the temperature rises, and more humid if the temperature falls.

If the air "sample" has all the water vapor it can hold at its temperature, it is "saturated" and its *relative humidity*

FOG continued on page 150

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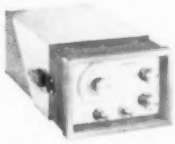

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FOG continued

is one hundred percent. If it has just half the vapor it can hold at that temperature, the relative humidity is fifty percent. And so on.

Since the air can hold less water vapor as it is cooled, its relative humidity increases as the temperature falls. Eventually it can reach a temperature at which the relative humidity becomes one hundred percent. Any further loss of heat will cause the vapor to *condense* as liquid water on dust and salt particles in the air. This temperature is called the *dew point;* the beer cans and cold water pipes you see "sweating" on muggy days are at least as cold as the dew point. How "cold" dew point is depends, of course, on the actual amount of water vapor present at the time.

Suppose, as night approaches, the air temperature begins to fall toward dew point. If it gets there, droplets will form on those ever-present salt- and dust-mote "nuclei." This is *radiation fog*, fairly common in warm weather, when you do most of your boating, and especially common in New England and the Pacific Northwest. Radiation fog forms over the land practically always, and then spreads over the water, as the cool air layer tends to run down slopes and collect in low spots—including bays and harbors, and inshore waters. This is because the land cools much faster at night than the water—which cools very little.

Now, if you know the temperature and you know the dew point, and you find how fast the temperature is falling toward the dew point, you can predict whether radiation fog will form, and even the approximate time.

To find the dew point you need a gadget called the *sling psychrometer*. It is not very expensive and is a good investment in safety, correct piloting decisions, and fun not spoiled.

This consists of two mercury thermometers mounted on a common backing and hung from a pivoted handle, for swinging. One of the thermometers has a clean muslin "sock" snugly covering its bulb. The sock is first wetted thoroughly in clean *fresh* water (you can get free distilled water from your drugstore). Then the operator briskly "twirls" the thermometers, propeller-style, for fifteen to twenty seconds. He takes a reading, "wet bulb" first. It should be cooler than the "dry bulb." He twirls again to make sure the wet bulb has cooled all the way. A third spin is a good check, and it all takes about a minute.

The rest is easy, as psychrometers come with tables. Looking up the difference between the dry- and wet-bulb temperatures gives the dew point for the present air temperature, which the dry bulb supplies, of course.

What we really need, however, is the *spread* or difference between the dew point and the air temperature. Some tables give the spread directly. Otherwise, all you need do is subtract the dew point from the dry-bulb reading.

If you have reason to worry about fog, you will be taking hourly or even half-hourly readings. Suppose the spread has been shrinking one degree per hour. The time is 1900, the temperature 73 degrees, the dew point 69. When should fog form? Four hours later, at 2300, if the temperature keeps falling at that rate.

A clear night, with light winds, is needed for radiation fog to form. The ground actually governs the air temperature, by night or day, and the ground cools first (the air layers near it cool by contact). The ground must radiate its heat to outer space, and clouds would act as a blanket, reflecting heat back and retarding the cooling process. *Light* winds cause just enough stirring to cool a greater depth of air and let a deeper fog form, but stronger winds would mix air layers and prevent air near the ground from reaching dew point. On calm nights only a shallow fog, that you can see over if not through, can form, but the birth of a slight breeze may deepen it.

After sunrise, the sunlight filters through the fog and warms the ground, indirectly warming the air next to it. This layer warms up past dew point, its fog droplets evap-

FOG continued on page 152

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orate, and the warmed air tends to rise. It mixes with higher layers, warming and drying them, and we have all seen fog "lift." (Sometimes the rising tendency makes the fog build up "on top" as it disappears below, and the result is a low stratus cloud. A good "mixing" breeze can do the same thing, by day or night.)

A radiation fog that forms early lifts late, as a rule. The air is more humid and the dew point high: the temperature doesn't have to fall far to reach it. The fog itself delays the next morning's rise above dew point. Moreover, late-forming fog tends to lift early. The dew point is low: less vapor is present. The fog won't get as thick, and the sun will soon be there to chase it away. On really dry nights no fog forms, because the dew point is so low the temperature can't fall that far before sunrise brings warmth. The psychrometer can tell better than you can how "damp" or "dry" the air really is.

Often all the above conditions are met, and yet no fog forms. Why not? There is one more condition: the air must be *stable*. Roughly speaking, stable air "shows reluctance to rise" and thus can settle into layers. There is no room here to discuss stability and instability, lapse rates and other technical matters. However, an omen of stable air is flattened, patchy stratus clouds, or *no* clouds, on a humid day. The emblem of unstable air is puffy or towering cumulus-type clouds, *by day* (instability clouds usually disappear at night).

The most frequent, and the most stubborn, marine fog in most areas is *advection fog*. It comes day or night, and may last for days. The usual cause is warm, humid air moving in over colder land and water. In the northeastern United States, "warm" air often comes all the way from the Gulf of Mexico, where it picked up, blotter style, a cargo of moisture. This air can cool well below its dew point as it moves northward. The resulting fog may cover thousands of square miles of land and water. The sun can't fight it very well because new moisture supplies keep flooding in. (And in winter, air can *radiate* heat away, even by day, faster than the sun can replace it.)

California coastal water is relatively cold compared to water masses farther offshore. A wind in the western half of the compass can blow humid air off the warm ocean onto the cooler inshore waters, bringing a familiar fog to the Coast. On the Atlantic Coast, especially in the northeastern states, east or southeast winds often bring air from off the Gulf Stream onto cool waters inshore. Sometimes the Great Plains states, and their rivers and lakes, get a combination advection-upslope fog on southeast winds. (*Upslope fog* forms because air expands and cools as it rises, because of lessening atmospheric pressure on it. Moist winds blowing uphill—as from the Gulf toward the Continental Divide—can cool past their dew point.)

On the other hand, *cold* air advancing over *warm* water can make fog—"steam fog," usually patchy. If the water is relatively warm enough, it may be "firing" vapor molecules off its surface rapidly enough to saturate the air. (This is also a factor in thickening radiation fogs that spread out over water.)

If you suspect that the water under your boat is appreciably warmer than the air, take its temperature. Dip some up in a bucket or can, immediately insert a thermometer, and read it *with the bulb in the water*. Allow the thermometer a few seconds to come to the reading. Meanwhile, shield the container from direct sun and breezes, and don't hold it in your hand.

Advection fog is harder to predict locally than radiation fog, but keeping track of dew point spread still helps. A rising dew point is a danger signal, unless the temperature is rising faster. Weather maps will help you by showing temperature and dew point structure of incoming air masses. Good radio forecasts will at least mention their character. Watch out for "Maritime Tropical" air if you are in cold


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water, or early in the reason when local ground and water are still chilly. (Another bad actor is cool "Maritime" air over a warm water surface.)

*Frontal fogs* come with storms and result from the approach or passing of a warm or cold front. A "front" is the boundary between two air masses, that differ both in temperature and humidity. If the warm air is advancing, the moving boundary is called a "warm front." The boundary of an advancing cold mass is a "cold front."

As a warm front approaches, warm moist air rides up "over the top" of the retreating cold air far ahead of the warm-cold boundary on the ground. ("Warm" and "cold" are relative terms, so this happens summer and winter.) Rain breaks out two hundred miles and more ahead of the front. This is normally intermittent, gentle rain. Nearer the front (say within a hundred miles) the rain is steady and heavier. There, warm drops falling through the cold air lose water vapor from their surfaces as they fall. This can bring the cold air to saturation, causing a messy "prefrontal" fog, with that rain falling through it.

A cold front rushes in like a great surf-wave rearing up almost to the breaking point. It "plows" warm, humid air back up over itself, making thunderclouds. There is some mixing with the warm air in collision with it at the ground. The sudden cooling of the "mixed" air sires fog. Behind the front, rain falling through the cold air adds to its moisture content, perhaps past the saturation point. Mercifully, a cold front is likely to pass quickly, taking its fog and rain with it, and leaving you "submerged" in cool, dry air: pleasant weather, with spanking northwesterly winds. (These winds have a drying effect. They tend to prevent or blot up "postfrontal" fogs.) But a strong cold front generates squalls and lightning, and even without fog it is something to beware.

Fog is only a stratus ("layer") cloud that forms at the ground or water surface. Advection fogs, like the "frontals," may be overlain by "true" clouds. When conditions are ripe, fog and clouds merge so that there is no break. This is hard on aviators. It can be miserable and dangerous for you, too, and the condition may last hours or days.

If you invest in a psychrometer (any scientific or boating gadget house can supply one) buy or make some kind of protective case for it, and mount it vertically, bulbs down. Have a replacement thermometer aboard, because sooner or later you or "the mate" will knock off the end of the wet bulb against the coaming or a passenger's belt buckle. Keep an extra supply of the woven sock wicking. (If the sock gets dark or dirty, or absorbs salt from the air, readings will be falsified, so change it often. Tell the kids to keep their cotton-pickin' fingers off it, and keep yours off, too.)

The psychrometer wet bulb works the same way as your body's perspiration cooling system. Evaporation cools it until it can no longer "give" water vapor to the air. Like you, it likes ventilation, and it much prefers *shade*. "Twirl" it as briskly as you can because, if you let it stand, it takes it forever to cool, and a little local "pocket" of high humidity forms around it—unless you're holding it into a 15-knot breeze. Face into the wind anyway to avoid body-heat effects. Thou shalt not touch the dry bulb before or during readings, nor the wet bulb ever.

The psychrometer will give you the relative humidity too, if you want it. If the tables that came with yours aren't teamed with humidity tables, you can get the Weather Bureau's own for 30 cents.—NICHOLAS ROSA

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# DESERT BOATING

**Arizona has switched from horses to boats to become one of the busiest watersport areas in the U.S.**

By Robert Lee Behme

DESERT CANYONS which once responded to the hoofbeats of rustlers and the blast of sixshooters are now echoing a new sound: the high pitched whine of boat engines. Outboard and inboard, low power or high speed, boating has invaded the deserts in a big way.

Arizona, for example, now boasts more boats per capita than the total per capita ownership of the entire Northern Atlantic seaboard. It has been tabbed the fastest growing boating state in the U. S.

As with most of the areas in Arizona, the boost in boating around Phoenix is directly due to the post war appearance of water. Within a 60 mile radius are three irrigation storage lakes: 46 miles northeast lies Lake Sahuaro (named for the famous Saguaro—or Americanized "sahuaro"—cactus); 52 miles due east is Canyon Lake, and Apache Lake is but 60 miles in the same direction.

It has been the water that made the difference. When it came, Phoenicans thought for the first time of sports they'd formerly associated with seacoast states.

Al Schmidlin, automobile parts wholesaler, had long been interested in hot engines and boats. When water arrived he bought a 12 foot runabout, built up a jet-hot V-8 60, took his family to the lakes on weekends and, at 36, learned to water ski and race fast boats.

Dick Gardner, at 35, is a slim, energetic salesman who found pleasure and relaxation around campfires while hunting in the close-cropped deserts or fishing the streams which tumbled at the foot of the Superstition Mountains. When Dick won a 12 foot aluminum boat given away by a local boat show, he tried boating. He found it fun.

Ed Camrud had long been a speed fancier. He'd run through hot engines with jalopy and hot-rod cars. In the winter he transferred his need for speed to skiing in the mountains. When water came to Phoenix it seemed natural to Ed to water ski. He was naturally good and became interested in competition.

Rusty Biesemeyer was a boat builder before the water came. His specialty was the small, fleet hydro. Performance of the hydros was good, but sales were sporadic because owners had to haul boats too far for water. When water came to Phoenix Biesemeyer came out with a new, tough, modern-looking plastic hull. A 16-foot runabout, it has currently been fitted with Cadillac and Chevrolet inboard conversions. Clocked at speeds up to 75 mph, the boat is selling faster than Biesemeyer can make them.

Loren Mueller, whose week-time job is selling pianos to back-country ranchers, had long wanted a boat. The land in and around Phoenix offered as much boating opportunity as the dry desert land of the ranches he visited daily. When water backed up behind the irrigation dams and the lakes were opened to boating, Loren jumped in with both feet. He bought a 24-foot Lone Star cabin cruiser, trailer and trimmings.

DESERT continued on page 156

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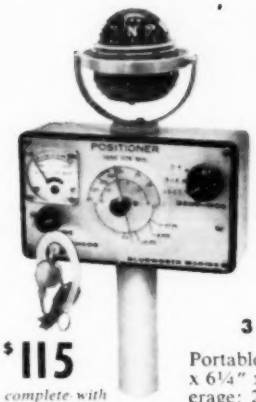

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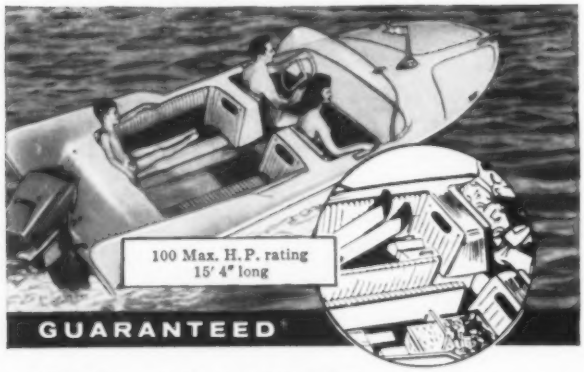


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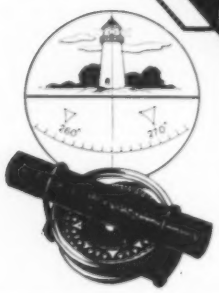

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DESERT continued

This spirit has made Phoenix a boating center virtually overnight. On a typical weekend more than 400 boats may be seen on either Canyon or Sahuaro Lake—the two favorites of the Phoenicans. The town now supports several marine stores and three boating clubs—the Desert Boat and Ski Club, the Arizona Outboard Association and the Arizona Hydro Association. Of the three, one of the most energetic, and certainly the most representative of Phoenix interests, is the Desert Club. Representative because, before the club had even gathered momentum, Schmidlin, Gardner, Camrud, Biesemeyer, Mueller and some 160 other Phoenix boaters had made it one of the livliest boat clubs in the U. S.

Dick Gardner, now recording secretary, was the drive behind the club's beginning. After winning the 12-footer, he found his interest whetted. On his first venture to the lakes he found the helter-skelter antics of the boats disconcerting. He soon found that accidents were on the rise and that Arizona legislators were threatening restrictive legislation unless boaters cleaned up their own problem.

Rusty Biesemeyer powers one of his boats around a course during an "over 45 mph" race on Lake Sahuaro. Biesemeyer is one of Desert Boat & Ski club founders.

Gardner began by querying local owners to find out why they couldn't organize some kind of group to regulate traffic to avoid restrictions which could spell the end of the new-found boom. News spread and soon Dick found enough interested owners to call a meeting.

Interest was higher than Dick knew. At the first meeting more than 90 owners attended: more than 60 stayed to form the Desert Boat and Ski Club. Among them: Schmidlin, Camrud, Biesemeyer, and Mueller.

Immediately, the club gathered a list of rules which would make the lakes safe, but not cut down on the fun: right to left traffic pattern, use of observers when towing water skiers, club regulated "safe speeds" when approaching and leaving beaches or docks, and zoned areas for swimmers.

Out of these regulations has grown a club-sponsored water patrol, called the Maricopa County Water Posse. Members, who are all boat owners but not necessarily Desert Club members, are sworn Deputy Sheriffs of Maricopa with full authority to arrest. Although they wear regulation uniforms, complete with badges and guns, the Posse generally patrols the lakes to warn boaters of unsafe practices. They've never made an arrest: they've never had to.

Once the regulations had been approved and distributed and enforced by the Water Posse, accidents dropped 400%. The job done by the Water Posse has been cited across the length of Arizona as an example of what public-spirited citizens can do to regulate themselves. Only recently, Ari-

DESERT continued on page 158

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zona newspaper columnist Ben Avery, an often-times critic of boating, wrote:

"This is something of a tribute to a bunch of guys for an outstanding public service far beyond what could be expected of any good citizen.

"It goes to those members of the Maricopa Sheriff's Water Posse and Jeep Posse who have joined to do a volunteer job of patroling Canyon and Sahuaro Lakes.

"The men manning the weekend patrols have taken on a job, a job that otherwise would have had to be paid for by county taxpayers or left undone. In the past it has been left undone.

"Each man, in addition to giving up a lot of his time on weekends has put up his own money for uniforms and other equipment, plus dues in the Water Posse. The brunt of the task has been handled by Water Posseman Jack Jennings, Dick Gardner, Glenn Stewart, Jim Fabro, Val Blask, Maurice Cluff, L. A. Mueller, Frank Schmidt, Harry Finder, Frank Johnson, G. B. Godbold and J. C. Engdahl."

Only recently the real value of the posse was dramatically demonstrated when, at a public hearing, civic officials decided often demanded restrictive zoning would not be necessary on the lakes, because they had become safe. As long as the posse was on duty, it was stated, restrictions were not needed.

Water skiing has become a big thing around Arizona and meetings of the Desert Boat and Ski Club are held twice a month. Outings and events from picnics to competition are held at least once a month, ten months a year. Club officials always manage to work in plenty of competition events for water skiers and boats during these outings even though they sometimes find it difficult to squeeze in strictly boat competition events.

At a typical club affair there will be water skiing and boating events for all comers. In the ski-boat racing categories will be events for boats with speeds up to 35 mph, up to 45 mph and over 45 mph. You can find a wide variety of boats in the up to 35 mph category—everything from home-made runabouts to medium-sized outboard racers. In the under 45 mph events boats are generally the larger commercial designs with outboards. Over 45 mph events are generally limited to the fleet, fast Biesemeyer hull with Cadillac, Chevrolet, Oldsmobile or Thunderbird

**A club ski event on Lake Crescent brings a good member turnout. Some of the boats used can do 50 mph while towing skiers, and reach 65-75 mph without skiers.**

engines. With skiers towed behind, the boats clock around the course at about 50 mph. Without skiers they often clock 65 to 75 mph.

Often the club will turn for competition to the beautiful lakes with long fingers running up hidden canyons. These include speed races, treasure hunts, scavenger hunts, fol-

low-the-leader events and their strictly-for-laughs "Polar Bear Regatta."

Out of this listing the club has developed many novel events to whip up club interest and participation. Treasure hunts are among the most interesting. The idea has a novel twist and works this way: regatta chairman Jim Parry makes photographs of small segments of distinctive landmarks near the lakes. One photograph is distributed to the skipper of each boat entered. The skipper must cruise the lake until he finds the area shown in the picture. He then lands, searches the area until he finds the "treasure"—a picture of another landmark somewhere on the lake. He must cast off, find the new landmark, find its treasure. This is followed through five to eight separate photographs. The first crew to arrive at the finish line with all pictures aboard wins.

Southern Arizona weather is such that year 'round boating is possible. To underscore this to club members, a special "Polar Bear Regatta" is held January 1st. Members arrive at the lake swathed in heavy wool coats, long underwear and cold-weather hats while the sun swelters above them. Each member takes a swim in the warm waters of the lake and receives a small circular badge showing a polar bear skiing amid cactus and sunshine.

Events such as these stimulate the interest of club members but they represent only part of the service the club renders. Less than two years old, the club has an active legislative committee which works closely with Arizona legislators whenever boating issues arise. The committee evaluates all pending legislation affecting boats, fights harmful legislation by talking with legislators and press, and seeks to back legislation which can improve Arizona's boating future.

Although new to anything but club competition, short on background since water skiing and boating are relatively new sports in Phoenix, many club members are working

DESERT continued on next page


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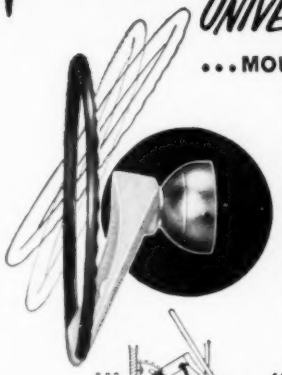

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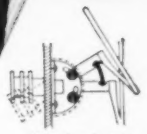

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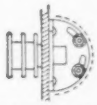

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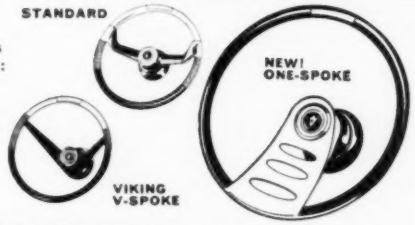


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hard for the day when inter-club competition will be wide scale. It has already arrived to some degree.

The club has had several meets with Los Angeles, California clubs and is working hard to build up championship water skiers from its younger ranks. Some of the adult members have developed to the point where they can hold their own against all comers. They've found that the fact that they hail from Arizona, a notoriously waterless state, sometimes leaves them open for barbed comments.

Ed Camrud, one of the club's top competition skiers, recently entered the famed Los Angeles to Catalina water ski race. He was riding behind Rusty Biesemeyer in a fast 16-footer. After leaving L.A. the fog closed in. Biesemeyer took a compass heading for Catalina and settled to serious racing. It was a bit confusing since neither Camrud nor Biesemeyer had ever covered the route before, but

Unloading boats at Lake Sahuaro: members arrive early in the morning in order to get in a full day on the water. Many are members of a "Water Posse" that patrols area lakes in interest of water safety.

about half across they felt more at ease as they came abreast of the leaders, two Los Angeles skiers. Because of the thick fog, Biesemeyer decided to stick close on their tail until he got close to Catalina before he made a run for first place. The movements of the three boats were synchronous. When one boat zigged the other two zagged.

The race ended with all entrants off course, stranded all over the channel islands. Camrud, Biesemeyer and the two leaders went far off course, landing on San Clemente Island, a heavily restricted Naval base. Camrud and Biesemeyer had the only boat with fuel enough to make it to Catalina. They took off for Catalina to call a rescue boat for the others. As they were leaving one of the other skiers told him,

"I thought you knew where you were going."

"Me?" Camrud queried. "This is my first time out here. I'm from Phoenix."

"Phoenix?" the man said, open mouthed. "He's further off course than we are."

Generally, however, Camrud and his competition compatriots, do not fall off course. Club members work hard for competition and are currently talking of greater conquests. At the first meet with Los Angeles, at Parker on the Colorado River, the Desert Club lost all events and the Los Angeles club walked away with the trophy. The second time out, however, the tables had turned. The Desert club cut a wide, winning swath, winning a major portion of the events to garner the trophy for themselves.

"Boy were they lucky," a Los Angeles club member scoffed.

"Lucky?" Another L.A. member said softly. "If you call this luck, think how lucky they'll be after another year's practice."—ROBERT LEE BEHME

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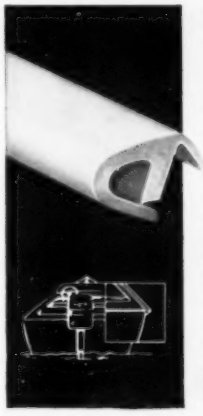

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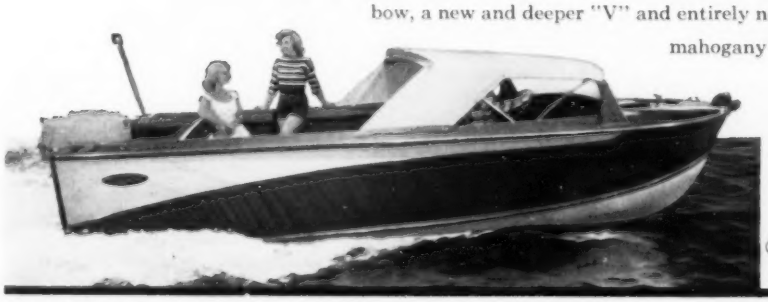

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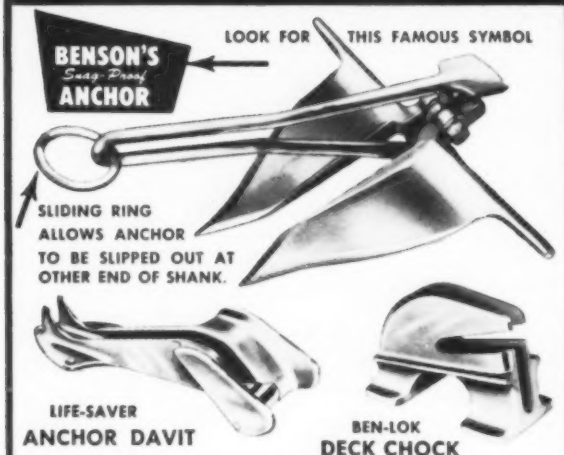




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# SAILING AT THE NAVAL ACADEMY

Ens. Gene H. Porter, U.S.N.

IN THIS AGE of nuclear powered ships and rocket powered missiles, the Mission of the United States Naval Academy remains ". . . to provide the Naval Service with capable junior officers . . ." To this end is applied a great amount of time, money, energy, and experience. Not the least of any of these expenditures is devoted to the practical training in the exercise of nautical judgment and in the handling of small craft that many midshipmen receive through the Naval Academy sailing program.

This sailing program takes many forms. It can be as leisurely and gentle as taking the parents and favorite girl out in Chesapeake Bay on a balmy September afternoon, or can be as challenging and gruelling as shortening sail at night in a stiff Gulf Stream squall. In few other circles is experience so great a factor in professional development as among the men who go down to the sea in ships. In this group there are many who will stoutly maintain that it is impossible to sail a boat, however briefly, without picking up some fundamental knowledge of the effects of wind and water on a hull.

All midshipmen receive elementary formal training in sailboats during their first summer as plebes. The mainstay of this program is the fleet of 28 sloop-rigged 26 foot Knockabouts. These boats are easily handled and built to withstand a heavy schedule of instruction. When the plebes have mastered the basic arts of sailing in the Knockabouts they move on to new Gannet Class 14 foot dinghies and the fleet of a dozen 44 foot Luders yawls. In the dinghies they learn the necessity of proper balance and constant attention to tiller and sail trim. In the yawls they are able to get out into the relatively open Bay and become familiar with a more complex type of sailing.

Upon completion of this period of formal training, the sailing activities of the midshipmen are strictly voluntary. During the remainder of the summer while the upper classes are home on leave, or on a training cruise with the fleet, those boys who desire to do so, sail as crew on the Navy boats in civilian-sponsored races to nearby harbors. This fleet includes not only the 12 yawls but also the 71 foot masthead yawl *Royono*, designed by Alden and built by Herreshoff in 1936; the 62 foot cutter *Highland Light*, built by George Lawley in 1931, and holder of the Bermuda Race record for elapsed time of 71 hours 35 minutes from 1932 until 1956; and the 89 foot gaff foresail schooner *Freedom*, designed by Alden and built in Chicago in 1931.

With the return of the upper classes and the start of the Academic Year in September, the sailing program takes on a new aspect. During the week the 12 yawls are assigned, two each, to the six Battalions which comprise the Brigade of Midshipmen. In the year-long race to accumulate in-

ACADEMY continued on page 164

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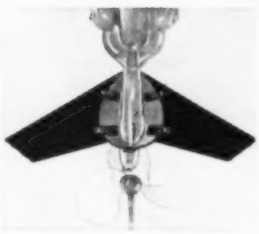

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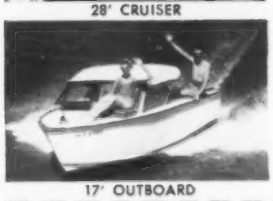

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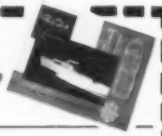

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tramural points for the honor of being named Color Company for the succeeding year at the traditional June Week ceremonies, the midshipmen who volunteer as regular crew members of the yawls strive to outdo each other in the maintenance of their respective boats and in increasing their own nautical capabilities. Both of these efforts are judged weekly by the Naval Academy Sailing Officer, himself an experienced sailor.

Not all of each day's free time is spent sanding and varnishing, or polishing brass, however. The crews get underway during the brief period after classes and practice racing starts or conduct short races. The crisp fall weekends bring the big challenges as all of the boats are entered in either the Annapolis Yacht Club's Fall Series or one of the other civilian-sponsored races on the Bay. With the increased responsibility of racing a boat in these events, a qualified member of the Naval Academy Sailing Squadron, either an officer or civilian instructor, is aboard as an observing safety officer.

The last weekend of the fall season is highlighted by the annual 100 mile *Skipper's* Race. In this race the *Freedom*, *Highland Light*, and *Royono* carry their customary midshipmen crews, and usually half of the yawls are entered with the most capable midshipmen aboard. One or two of these may have a midshipman skipper. Changing head-

Autumn brings need for foul weather gear as navy crew sails one of the Academy's yawls into November squalls.

sails on the bowsprit of *Freedom* in heavy weather on a moonless night in November is an experience few soon forget.

The Naval Academy Sailing Squadron, under the leadership of the Commanding Officer of the Naval Station, Captain Barry K. Atkins, works closely throughout the year with the Midshipmen's Boat Club to increase the knowledge and capabilities of the midshipmen sailors. In addition to helping the midshipmen with the fundamentals of sailing and the intricacies of the racing rules, the Sailing Squadron helps provide lecture programs. These include talks by various local yachtsmen such as Arnie Gay, or by men who work in some specialized field, such as Mr. Jan Hahn from the Woods Hole Oceanographic Institute, who spoke in 1958 on the vagaries of the Gulf Stream.

In recent years more and more emphasis has been placed upon the racing of the Naval Academy yachts. This serves the purpose of getting midshipmen out in the boats for longer periods of time than would be possible under just a recreational and upkeep program. However, as the art of yacht racing is developed within the Brigade, a limiting point is soon reached. To have proficient racing crews it is almost mandatory that the same men race together weekend after weekend throughout the sailing season. In doing this the number of midshipmen who can utilize the sailing

ACADEMY continued on page 166

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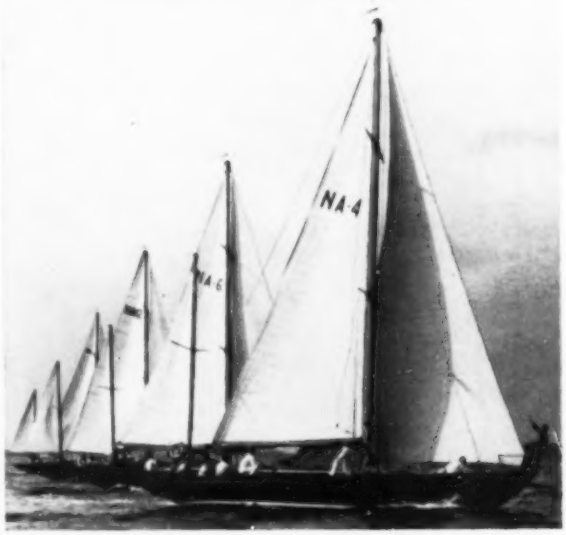
## ACADEMY continued

facilities during any season is limited to the capacity of the boats. The training advantages for a potential officer in racing on a boat in *any* capacity are so great that this program is still expanding. Increased participation is being fostered by such arrangements as sending a different group of midshipmen to Bermuda to sail home the boats that another group raced there.

The 12 Luders yawls make up a fleet which is ideal for use at the Naval Academy. They are large enough to be raced effectively with as many as nine or ten midshipmen




Midshipmen hold frequent intramural races, as well as entering events such as the Newport to Bermuda race.

"Do you have an anchor?"

aboard, and yet the split rig is not so complicated that each man who sails has to be a specialist for four years. The goal of every one of the yawl sailors is to be able to do all jobs well: call a Genoa on the wind, set and trim a spinnaker, or take a trick at the helm going downwind in heavy weather.

The ocean race provides the ultimate in practical training in seamanship. While each boat has one or two officers aboard, it is the midshipmen who take care of most of the details. Those who have been on previous ocean races are usually watch officers and navigators. In these races the Navy boats are competing just as much against each other as against the civilian boats, and perhaps a little more. The first Naval Academy boat wins the Gerber Trophy, and the first Service Academy yacht, including Navy, Coast Guard, Merchant Marine and the Maritime College, wins the Atlantic Destroyer Fleet Trophy.

In addition to the spring upkeep and ocean racing program there is a newly instituted schedule of intramural Knockabout racing designed to increase participation in sailing. If the thrills of sailing are not enough, there are various more tangible rewards for those who learn the ropes well. The DuBose Trophy is awarded annually to the midshipman skipper of a Battalion yawl who accumulates the most points during the fall season. The Admiral Holloway trophy is at stake each spring in an open series of elimination and final yawls races. The John Paul Jones Trophy is awarded to that midshipman of the graduating class who has contributed the most to the sailing program, such as Jim Googe, Captain of the '57 dinghy team and national high point man for that year, and Nick Brown Jr., Commodore of the Midshipmen's Boat Club in 1956 and sailing master on *Highland Light*. Varsity letters are awarded to those men who have achieved the greatest success in the program and are playing a material part in that year's ocean race.

Racing is not the whole picture of Naval Academy sailing by any means. On any weekend during the year the Knockabouts and sometimes the bigger boats are available to any qualified midshipman for recreational sailing. For most midshipmen this is a very pleasant way to spend a Saturday afternoon and perhaps impress his girl that he is in a real seagoing Navy.

The sailing program should be and is a lot of fun. It is keen competitive sport on one hand while at the same time being a very enjoyable way to practice the arts of a sailor learned in the classrooms ashore. There are many officers in the fleet today who feel very strongly that the training they received in sailboats was one of the most important parts of their development into competent naval officers. A man who can navigate a pitching sailboat to Bermuda should have little trouble doing the same job aboard a large naval vessel, and a man who has ridden out a storm at anchor knows the hazards of not letting out enough chain, and so it is with the many arts of a mariner which have not changed appreciably since the days of Lord Nelson and John Paul Jones.

Perhaps the most important, yet most subtle benefit of all, is the development of judgment on the water. Knowing when to shorten sail in a storm is very similar to knowing when to slow down a big ship in heavy seas. Tacking at precisely the right instant against a heavy current to just fetch a windward mark differs very little from bringing a warship into a narrow harbor under difficult conditions of wind and tide.

Commodore DeCoursey Fales, advisor to the Naval Academy on sailing, in speaking from the helm of his famous schooner *Nina*, summed up the whole program in saying that, "A midshipman who spends just ten minutes in a dinghy on the Severn will learn more about stability on the water than he can learn in a week in the classroom."

—Ensign Gene H. Porter, U.S.N.

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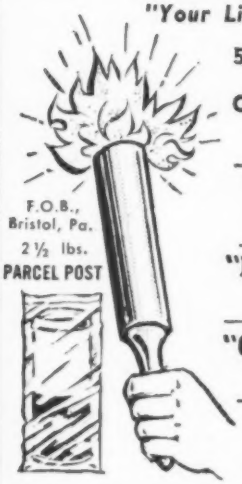

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# Advice to Three Young Voyagers

By Capt. Jeremiah B. Whittaker

SHORTLY after the June, 1958 issue of POPULAR BOATING appeared, I received a letter. It was written to me because in that issue of the magazine there had appeared an article, written by me, in which a certain amount of sage advice was given to a niece about to set off on her first cruise in a large yacht. The letter (with fictitious names used in place of the genuine ones) was as follows:

"Dear Sir:

As a pass-time this summer, Robin MacDougal, his brother Kenneth, and myself Richard Morsman, have started to plan a trip by water. It will begin at East Liverpool, Ohio, and extend to New Orleans on the Mississippi River.

We would be deeply grateful if you could in any way aid us by your own experience at a similar trip or by your common knowledge of the rivers and prevailing conditions. Our ages are 17, 20, and 17, and the boat we have bought is 16 feet long and 64 inches wide. Robin's uncle, owner of the Stout Bluewater Co. has given us two of their engines of 35 and 15 horsepower.

Up to this point, the trip is definitely planned, but of the details we know very little with the exceptions of the Coast Guard regulations and turns in the rivers.

However, what we mostly need advice on is: what type of food we should have on board (if any), what equipment do you suggest for safety and comfort (the seats are upholstered) and last but not least, where do you think we should stop in order to have variety.

We shall await your answers to these questions and any suggestions you might have to offer.

Sincerely,
Richard Morsman"

As can well be imagined, to answer a letter of this sort is something of an assignment, and for a day or two I was at a loss at just where to begin. Finally things resolved themselves in my mind and I wrote young Morsman:

Dear Richard:

Your letter arrived a couple of days ago, and I hasten to reply to it so that you will have whatever answers I am able to give while your trip is still in the planning stage.

First, I should like to say that the vacation junket that you and your two friends have projected sounds like a good one. It is a trip that I should like to make some day, and one that I started just about 26 years ago. The only differences between your trip and mine were that mine started at the headwaters of the Wabash River in Indiana, and I did not have an uncle who owned any factory. Back in 1932 the world was being throttled by an uncomfortable and unfortunate depression. There was short shrift for every one, particularly for adventurers. I didn't even reach the Mississippi, nor even the Ohio. My trip came to a hungry end at New Harmony, Indiana. Because of being thwarted then, I can only wish you the best of luck on this trip you now are planning.

There are many, many things that I could say that would be dull in the telling and duller still to read. I do feel that you should be much more secure if you were to make a few short cruises this summer and to plan your big cruise for next year. I know how impossible this would be, however. I do feel from the tone of your letter, though, that you are rather inexperienced boatmen, and that you have a great deal to learn about boat handling, boat safety, chart reading, rules of the road, etc., etc. There is no doubt that by the

ADVICE continued on page 170

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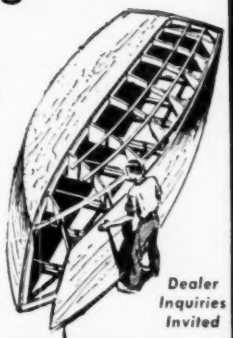

*Dealer Inquiries Invited*

U-MAK-IT PRODUCTS, DELAND, FLORIDA • DEPT. 7

time you arrive back home this fall you will know infinitely more than you now know; and ten years from now you will look back on this forthcoming trip and break out in cold sweat at your temerity in attempting so colossal a trip with so little knowledge. If you can and will realize this, right from the outset, the chances are that you will make out all right. In other words, if you start slowly and learn to know as you go, you should not have anything more than a great trip. If you start off with a rush, however, you may in the first day or two have an unhappy experience that will stop the trip dead in its tracks. So take it easy, at least at first.

As a matter of fact, I should suggest that until you reach the Mississippi, you keep that Big motor stowed amidships, or if you have to hang it on the transom, you plan not to use it except in the event of the smaller motor's shearing a pin or something (I realize, of course, that a Stout Blue-water motor would not fail!). You will be running with the current of the river. I assume that this will boost you along at perhaps 2 or 3 knots. If the 15 horse motor adds 9 to 11 miles an hour to this you will be covering 11 to 14 miles an hour, and this averages out to 100 miles in an 8-hour day. This pace will cover a lot of water—3000 miles in a month, for instance. While I would never be the one to look a gift horse in the mouth, if I were you I would rather have two 15 horsepower motors, rather than the 35 and the 15. With a pair of identical motors you could, in the event of a real jam, swap parts from one to another to make one operative. This could not be done with two dissimilar motors.

Even to begin to tell you what you should take with you is a staggering assignment. Probably first and foremost is a complete set of charts for the distance. These can be stowed in plastic bags and sealed against the weather. It would be well to have them separated into packets that would take you along for perhaps two or three hundred miles of the course. In this way you will have all of them clean and dry, except for the ones you are using. Don't make the common mistake of believing that a boat will go wherever there is water. Some water is too shallow to float even a canoe. A proper chart will tell you where you may and where you should not go. It would be a good idea if each day one of you is the navigator and the other two are helmsmen. In a small boat it is difficult to steer and follow a chart at the same time. There is no doubt that two pairs of eyes are superior to one.

One thing I should do is to have one container that will carry only emergency spares. In it I should put some waterproof matches, six cans of hearty soup, a flashlight and extra batteries, bouillon cubes, instant coffee, chocolate bars, and a couple of boxes of pilot bread. This would be the disaster kit, and the hopes are that it would never be needed. A section of discarded truck inner tube with both ends tightly tied would make a fine waterproof container for this stuff, and it could be stowed well forward out of the way of daily living.

Don't neglect to have life jackets aboard. These should be good ones, the best obtainable. They should be stowed ordinarily just under the forward deck where they will be easily within reach and yet out of the rain and spray. Don't feel that you are chicken if you put them on. It is better to be a live wise man than a dead fool. In our spring and fall racing here on the Connecticut River, even with crash boats in constant attendance, no one is allowed to be in a boat without a life jacket on and secured. I believe that I must recommend kapok-filled jackets, rather than the Mae West type that are inflated either by a $CO_2$ cylinder or by mouth. A kapok jacket is ready the instant you hit the water, and that is the time you need it. It also makes a fine pillow at night.

For sleeping out it is difficult to beat sleeping bags. Keep them well aired and dry. In any hardware store

ADVICE continued on page 172

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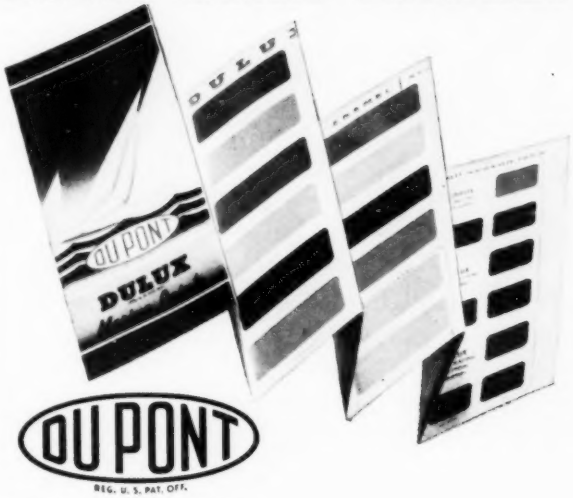


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***. . . through Chemistry***

—at least here in the East—it is possible to buy 9 by 12 foot drop cloths made of polyethylene sheet. These fold into a packet less than a foot square and an inch thick. They would be fine as ground cloths under sleeping bags, and draped over a line stretched between two trees would make a fine tent for a rainy night.

Don't neglect to have an adequate supply of insect repellent aboard. Our bugs here don't like the 6-12 brand that we find in our local pharmacies. Unless you know of something better, try it; and I heartily recommend that you do have something of this sort with you.

As for your daily runs, I suggest a routine that I have found good. Start early in the morning and stop early in the afternoon. I think that you would be wise to be snugged down for the night by five in the afternoon, at the latest. Don't keep pushing on and on into the dusk looking for just the right spot. The chances are that you will never find it, and in looking for it when it is too dark to see clearly and you are too fatigued to be alert, you can run into real trouble.

There is one thing that is almost sure to happen. You and your friends are at an age when you will be wanting to be doing a little experimenting with alcohol, as in beer, gin, the various whiskies, etc. Far be it from me to preach against it for "youth must have his fling, Lad." Please, if you want to get back to Ohio again do not do your experimenting while you are under way. Alcohol and gasoline do not mix any better on the water than they do on land, and on the water there are fewer good Samaritans to assist if you come a cropper. Most of the drowning parties we have in our area can be attributed to an injudicious attempt to go boating while blotto. So take it easy; you'll have plenty of time for everything in an orderly sequence. Don't go out of your way to make a hash of the trip or it will quite likely end up sadly.

Be sure that you always have a reasonably adequate reserve supply of fuel. I would suggest a three-gallon can—more would be better—that is always kept full. This, of course, will be in addition to the pressurized tanks that are motor equipment.

As a real ace in the hole, I suggest a pair of paddles. With the river current assisting, you cover a good deal of ground just drifting, helped out when necessary by the paddles.

Gad, Boy, there are so many things to say.

One thing you must expect—and you should tell your companions about this: Three men in a boat on an extended cruise can whip up a difficult situation. You will remember that the Triumvirate of the old Romans was not a lasting success. Other triumvirates since then have had problems also. The old adage of "two is company, three a crowd" seems to work out in almost any situation. Suppose—since you are to me unknown quantities—I label you X, Y, and Z. You will find during this trip that at times, X, Y, and Z, will get along swimmingly with no problems. Then first thing you know, X and Y will be particularly chummy and Z will be something of a lone wolf. Then again, X and Z will find a common bond for a while, and Y will be whistling in the dark. Almost before he has finished his tune he will find that he and Z have teamed up and X is walking alone. I believe that if you realize this possibility—I should make it stronger and say probability, it will be easier to understand and to cope with when it occurs. Just sweat it out; you'll forget it all when the trip is over, and it doesn't mean anything anyhow. But don't be surprised when it happens, and don't blow any stacks.

You should figure out the total number of miles you propose to travel and the number of days you want to spend on the trip. A simple problem in division will tell you how many miles a day you have to make in order to complete the itinerary. You should then

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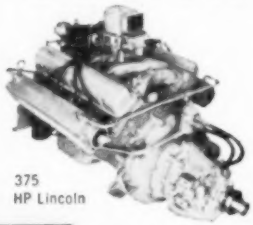


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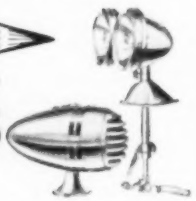

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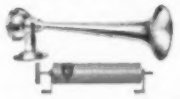

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plan to make 15 to 20% more per day than you have figured you should. This will take care of laydays due to weather conditions, mechanical problems, and interesting sidetrips.

I am sorry that I can not suggest any stopping places along the route you plan to take. This is cruising country I have never seen. You will have to go it alone on this. My only knowledge of the Mississippi is that occasionally and without warning partially waterlogged tree trunks drifting down with the current will be tripped on the bottom and catapulted out of the surface of the river. They are called boomers and are dangerous, but the possibility of your being hit by one of them is about as great as your being hit by a truck while crossing the main street of your home town.

About food I can't advise you. If you have had any scout or similar training you will know your own limits on outdoor cookery. The chances are good that you will hit at least one town each day. Plan to have one good meal ashore daily. For breakfast: dry cereal, fruit, coffee, tea or milk, plenty of bread, butter and peanut butter. You should limit your cooking utensils to a large cast-iron frying pan and a couple of 4-quart saucepans. Remember that canned vegetables, beef stew, etc., can be heated in their own cans *after they have been partially opened* to relieve excess steam pressure. Don't hesitate to stop at prosperous looking farms at meal times and offer to pay for a meal.

One thing I can't stress too much is that no matter how unusual and bizarre the people you will meet on your travels may seem to you, YOU are the strangers. Unless you are planning a bit of missionary work in connection with this trip (and missionaries sometimes have a rather thin time of it) you will refrain from direct or implied criticism of the habits and habitats of the people you will meet along the way. I am just enough of a cynic to feel that it will be advisable at times to leave one of the crew with the boat and equipment while the other two are seeing a town or spot of interest. Remember that the gear you will have with you is mighty fine and extremely attractive to others not fortunate enough to have it. Sometimes temptation cannot be overcome. Don't carry much cash with you and don't show all you do have. It would be possible to carry travellers' checks with you or to mail yourselves postal money orders from town to town, picking out spots that would be six or seven days ahead of you.

Whenever you make a stop for gas or whatever you need, talk with someone familiar with the locality and find out if there is anything in the river ahead that is particularly noteworthy or hazardous. It is amazing how eager

ADVICE continued on next page

A Sailor is different...

He sees things other men don't see . . . like the wind in her sails. He hears things like the song of the breeze in the taut rigging. He even feels different . . . sensing the living response of a boat through her lines and ropes. And, because he's proud of his skill and his boat, he generally prefers lines and ropes by Columbian. They look better . . . handle easier . . . coil true and give quicker response. Because he's practical, he likes the long life and true economy found in Columbian Yacht Rope.

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**ADVICE** continued

people are to spread their gospel (as witness all these words I have just written), and the best information you can get will be from some one who knows the area in which you are.

I wish I could feel that I have covered the situation thoroughly and that I have answered all your questions, both direct and implied. I know that there are many things I have not touched on, and I am sure that there are many things that you will have to learn the hard and the unforgettable way. One thing I should like to stress even to the point of repetitious boredom:

TAKE IT EASY, AT LEAST AT FIRST. YOU ARE STILL YOUNG, AND IF YOU DON'T GO THE DISTANCE THIS TIME YOU CAN TRY IT AGAIN LATER—IF YOU ARE STILL ALIVE.

Sincerely,

Capt. Jeremiah B. Whittaker
Essex, Connecticut

The post script is a pleasant one. Here is a letter I recently received:

"Dear Captain Whittaker,

I am very sorry I have not written you sooner, but with all the excitement of getting back from our trip and telling everyone about it, writing you completely slipped my mind.

We left Cincinnati, Ohio, June 19th and arrived home July 10th, after a two week stay in New Orleans. The first two nights out we cooked in the open, slept in sleeping bags or hammocks, and rose before sunrise each morning. However, about 20 miles from Evansville we met a 25-foot inboard that had lost its prop and wished to be towed back to the town. We received $20 for the tow and spent it for a good dinner and a night on the town. We then decided to sleep on the boat as there was nowhere to camp. The simplicity of this whole affair amazed us, so it became our daily routine, and dinner, because of our limited money, became only two hamburgers with a glass of milk.

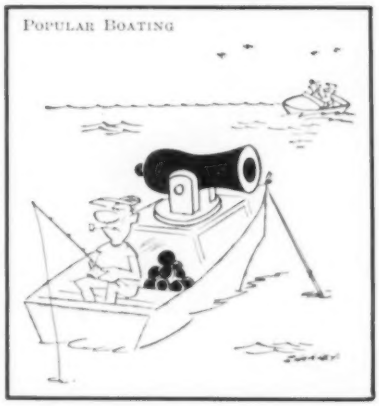
After having cruised down the river for a week and a half, we ended up in jail in a Mississippi town for being run-aways. However, when they saw our boat, equipment, and most of all our traveler's checks, they released us and begged our forgiveness. Aside from that, we found the people along the way unbelievably hospitable and friendly, and even more so when they heard of our trip.

I can't think of any advice we needed that you left out of your letter, and I don't think we would have tried it without your encouragement. The trip took a little over a week; we made no stops for more than a night except in Vicksburg and Baton Rouge, and spent about $125 (including gas) apiece for the trip until we hit New Orleans. There we really went wild and spent $275 in two weeks.

I would very definitely take the same or any similar trip again. There is no end of recreation—for instance we water skied about 50 miles a day, even though we lost time and gas money doing so.

So I know this hardly scratches the surface, but I wanted to thank you and tell you about it.

Sincerely
Richard Morsman"




"I wouldn't run too close to him. I understand he's touchy."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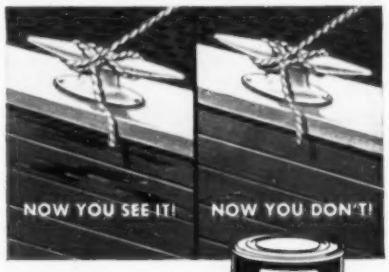


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## BOOKS FOR BOATMEN

*Boating books may be ordered through your local bookstore.*

**The Experts' Book of Boating,** edited by Ruth Brindle. Prentice Hall, Inc., 291 pages, illustrated. Price, $5.95.

A wide cross-section of boating topics are touched upon in this interesting volume. While the book is not actually designed for reading by experts, nor do all the contributing authors rank as such, the chapters offer introductions to subjects which an interested reader may follow up in more technical volumes.

Boating basics are covered in such chapters as Coast Piloting, Fundamentals of Sailing, Design of Modern Yachts, All About Outboards, Yachtsmen's Weather, Rope for the Boatman, Boating Safety, The Seagoing Cook, Some thoughts on Yachting Etiquette—23 chapters in all. Authorities such as Philip Rhodes, Ernest Ratsey, Cornelius Shields, and Alfred Loomis are among the writers represented. Drawings and diagrams illustrate a number of the articles; and a few of Rosenfeld's famous photographs, including one of "William Luders" *Surf*, are also used.

Here is a primer for the boatman who would like a brief but interesting introduction to 23 facets of pleasure boating.

**Fishing America,** edited by Edward A. Hamilton and Charles Preston; text by Charles R. Meyer. Doubleday & Co., Inc., 128 pages, illustrated. Price, $5.95.

This is a collection of fine fishing photographs, including 16 in full color, arranged in groups covering four sections of America: northern and southern fresh water areas, and northern and southern salt water fishing. Every kind of fishing is represented, from fly casting for trout to offshore trolling for marlin. Meyer's text is brief but informative.

**The Dinghy Year Book 1959.** Published by Adlard Coles in England. John De Graff, Inc., 208 pages, illustrated. Price, $2.50.

This is the second volume in a series of year books for dinghy enthusiasts, and contains articles by England's leading dinghy exponents. Articles in the book cover such topics as long-distance dinghy racing, building from kits, catamaran racing and development, and dinghy designs. There's also a listing of principal dinghy events of the past year, plus a "Who's Who" in the dinghy world.

The only unfortunate aspect of this book is that it is aimed at the British reader, and there is much that applies only to dinghy sailing and racing only in England.


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15' SUPER DELUXE Flamingo

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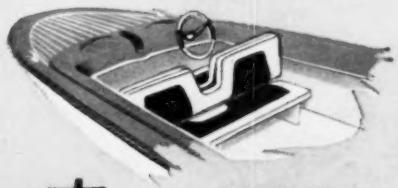

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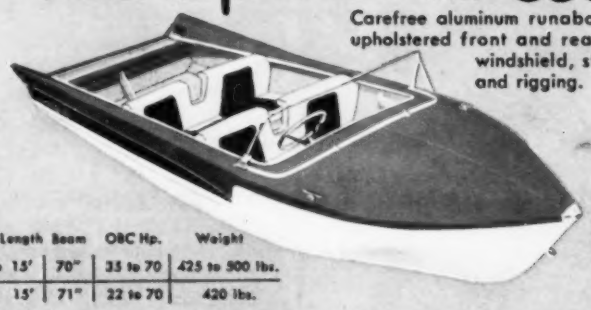

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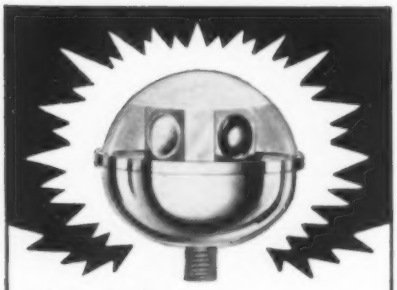

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how to:

# BUILD A JIB BOOM PEDESTAL

**Here is a simple, inexpensive way to make your jib self-tending**

The bother of tending jib sheets when changing tacks is eliminated with this author's home made jib boom. Device is a boon to the single-hander.

By John Wolbarst

AN EYEBOLT, some pipe fittings, and a few minutes' work produced this excellent jib boom pedestal. Total cost, less than $5. I was inspired to make it when I saw that commercial versions of what I needed were priced from $45 and up.

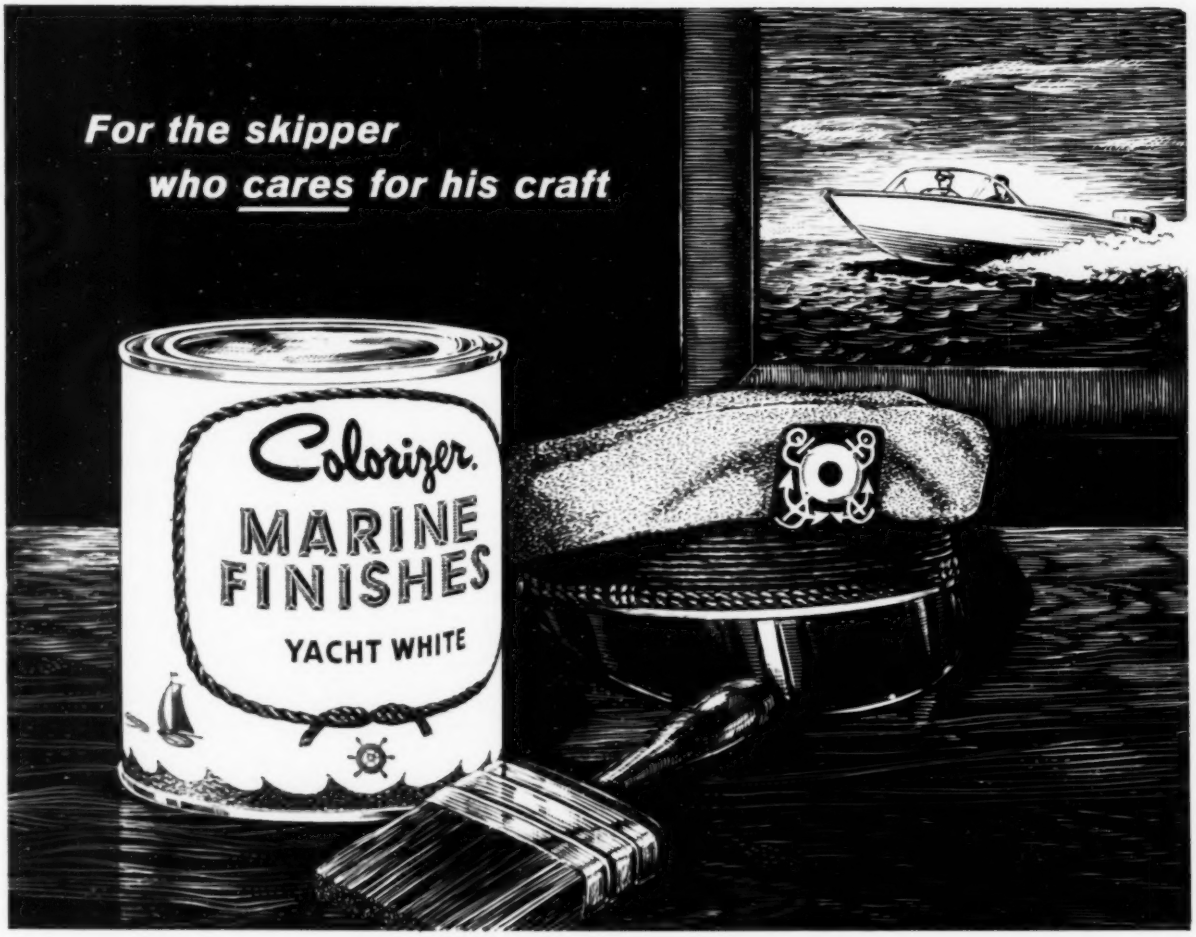
According to the experts, the most efficient type of self-tending jib is one in which the sail is loose-footed, with the clew (aft end) fastened to a boom that pivots on a pedestal mounted on the bowsprit or deck somewhat aft of the jibstay.

With this arrangement the jib boom is shorter than the foot of the jib. Since the jib and the boom are of different lengths, they move through different arcs as the sail swings from one side of the boat to the other. When close hauled, the boom pulls the jib tight and flat. However, when the sheet is slacked and the boom swings out a bit, the loose footed jib (being longer in the foot than the boom) takes a natural curve, just about as it would if there were no boom. Thus, the pedestal boom combines most of the efficiency of the loose-footed jib and the self-tending feature of the boomed jib.

On my boat the jib boom is just over 5 ft. long. The pedestal is about 18 in. aft of the jibstay. Apparently the exact location of the pedestal is not too critical. I have tried it several inches closer to the jibstay (with a longer boom) and it worked equally well. What is important is that the boom should reach far enough aft to pull the sail flat and tight when close hauled and still be able to clear the mast when coming about.

The captions and photos explain the details of the pedestal. Here are some further general points to consider. If

BOOM continued on page 178

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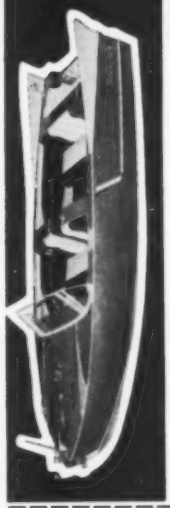

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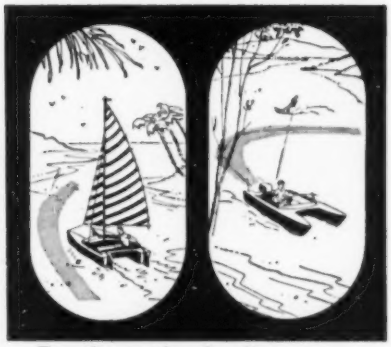
Assembled jib boom is pictured, above, with flange and pipe nipple used when taller pedestal is needed.

you find it necessary to sit straddle of the bowsprit in order to set and handle the jib, it's a good idea to make the pedestal just tall enough so you can get your leg under the boom, even when you're close to the pedestal. However, it is my experience that a short pedestal is more effective than a tall one. That's because the aft end of the jib moves through a downward arc as the sheet is tightened. If the pedestal is short, the boom gets effectively longer as it is pulled down closer to the deck. This stretches the sail a bit tighter than it would be if the boom

Shorter pedestal for bolting through the deck can sometimes be used for an inboard jib or a stays'le.

were mounted on a tall pedestal. Also, the taller the pedestal the greater the wrenching stresses on it and its fastenings to the deck or bowsprit.

For a boom I used a piece of an old spar, cut to the proper length. To fasten it to the pedestal, I bolted on a pair of sturdy flat bronze straps with their ends projecting about 2 in. beyond the boom. A bolt passes through the straps and the eyebolt of the pedestal. This bolt is secured by two nuts; the second one is between the straps, and by tightening the two



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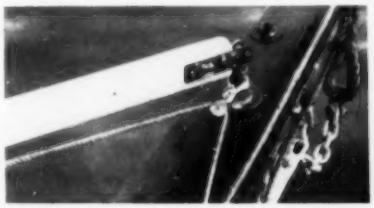
nuts on opposite sides of one strap the bolt is locked in place without putting any bending strain on the straps. Washers between the straps act as spacers and hold the boom in line.

As I wanted the clew of the jib to attach to the boom as far aft as possible, I drilled a hole in the end of the boom (lengthwise, that is) and inserted a long eyebolt, bedding it in a strong waterproof glue. Since there are no strains to pull the bolt out it's in there permanently. I reinforced the boom by wrapping a layer of 2 in. fibreglass tape (and resin) around the part in which the bolt is seated—it will never split. A snap lashed to the jib clew goes through the eye of the bolt.

The standing end of the jib sheet is also spliced into the eye of the bolt. The sheet passes down to a block on



**Completed installation is shown above. Paint or buff polish and use oil to be sure boom swings freely.**

a traveler, back up to a block on the boom, forward through an eye on the boom to a swivel block lashed to the pedestal, and then aft to the cockpit.

WHAT YOU NEED: The parts and sizes indicated have been sufficiently strong for a working jib of about 85 sq. ft. area. You can make them huskier or lighter according to your needs. I used bronze throughout, except for a brass washer. Here's the list: (1) ¾ in. flange. (2) ¾ x 2½ in. nipple (this may be longer, if necessary). (3) ¾ in. cap. (4) ⅜ x 2½ in. eyebolt. (5) nut for eyebolt and extra locking nut. (6) ⅜ x 1½ in. nipple. (7) washer to fit ⅜ in. bolt.

STEPS IN CONSTRUCTION: Drill a ⅜ in. hole dead center in the top of the cap to take the bolt (4). This should be an easy fit, as the bolt must be able to turn freely. However, it should not be sloppy. Slide the washer on the bolt and pass the bolt through the cap. Fit the smaller nipple over the bolt. This nipple acts as a spacer between the cap and the nuts. It prevents the bolt from riding up through the hole in the cap. Add the nut and draw it up until the nipple is tight against the inside of the cap. Then slack off the nut about ⅛ in. so the bolt can turn freely. Hold the nut in place with a wrench and with a second wrench jam the lock nut tightly against it. Now the bolt should rotate freely in the cap with a small amount of vertical play.

—JOHN WOLBARST

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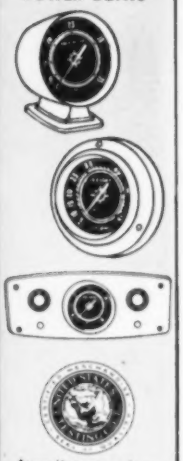

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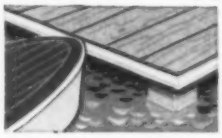

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how to:

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The tachometer consists of two units, a pickup unit and a panel unit, with meter. The pickup unit can mount anywhere in the boat; the panel unit mounts on the dashboard. In operation, ignition impulses from the high tension lead between coil and distributor (or magneto and spark plugs in the case of outboards) are fed into the pickup unit. These pulses cause more current to flow through the meter amplifier, and also through the meter, causing the indicator to move upscale.

A neon lamp calibrator is supplied with the kit, for initial test and calibration of the unit. A moisture-proofing varnish is also supplied, so that wiring connections can be protected against fungus and salt spray.

The tachometer, Heathkit Model TI-1, is manufactured by the Heath Company, Benton Harbor, Mich. Price is $25.95.—TOM BOTTOMLEY

1 Terminal strips are added to main chassis after transistor sockets and selenium rectifier are bolted to subchassis at right. First resistors are being positioned between terminal lugs. Solder is not applied at any lug until everything that connects to it is in position.

TACHOMETER continued on next page


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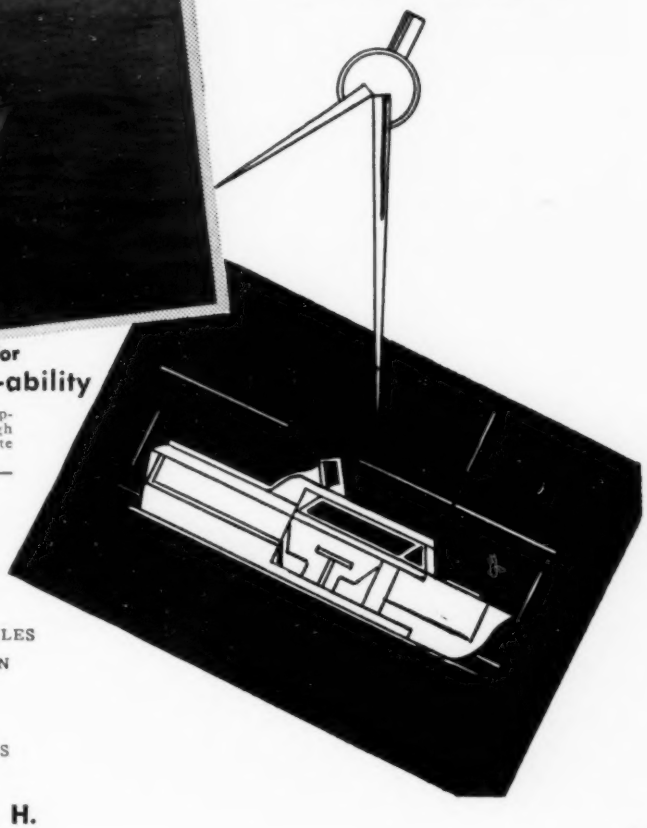

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TACHOMETER continued

2 Complete instructions for correct soldering technique are given in manual supplied with kit. Note that radio solder, with a non-corrosive resin core is used. Do not use an acid-core solder. Step-by-step instructions are detailed; previous electronics experience is not needed.

TACHOMETER continued on page 184


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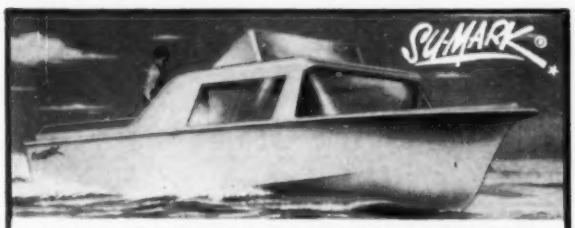


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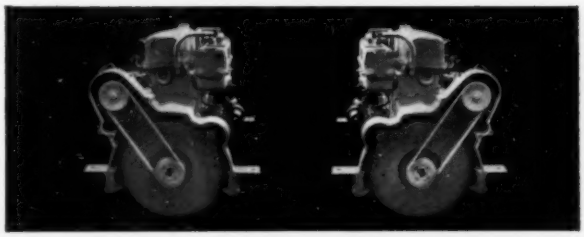

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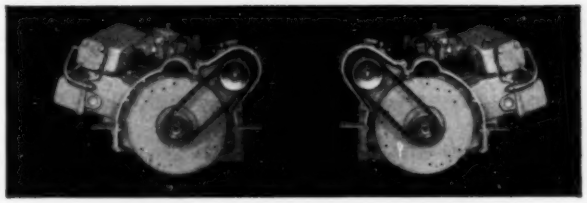

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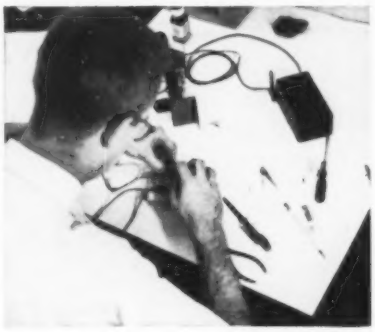

**3** After main unit is completed, calibration control is mounted on the meter panel. Four-lead cable connects calibrator to unit.

**4** Leads to the meter are attached. Use care when soldering here, as heat from iron can melt plastic case.

Ready for installation: Clip in foreground goes on the high tension lead from coil or magneto. Panel mounts on dashboard. If boat has negative ground, connect black wire from the instrument panel to ground. If boat has positive ground, ground red wire from the panel.

XXX

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# PRE-SEASON CARE OF YOUR RADIOMARINE

By Oliver Read

IF YOU ARE an average boat owner, chances are good that you have overlooked the necessity for taking proper care of your electronic gear. In particular, you may have felt it unnecessary to do anything to the radiotelephone equipment to insure continued peak operation during the coming boating season.

Coastal skippers are all familiar with the damaging effects of salt water and moisture from salt air on their fittings. The radiotelephone, even though housed in a metal cabinet, is also affected. Manufacturers utilize specially treated parts in their products to offset these effects, but even this precaution is no guarantee that parts will not become corroded. By following a simple maintenance program, you can greatly improve your chances of successful radio contacts in any emergency.

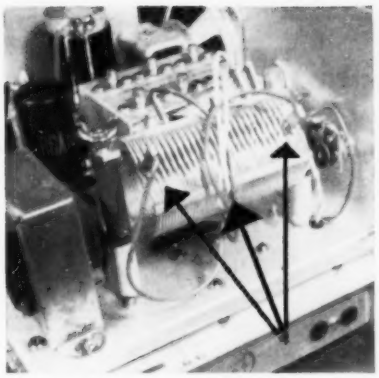
## RECEIVING SECTION

A good general cleaning should be done first, after the chassis is removed from its case. A word of caution—do not under any condition disturb the various connections on the large coil. These have been set by your licensed marine installer, and only qualified personnel may legally change their settings. Use a 1" soft bristled brush and carefully remove dust from all surfaces. Do not remove the tubes until the dusting is completed.

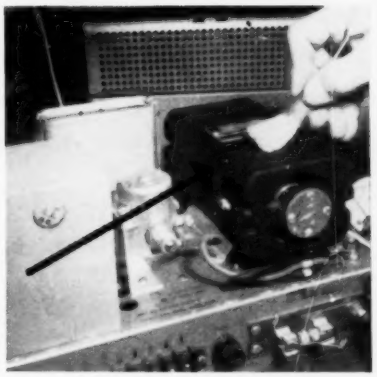
Carefully remove each of the smaller tubes making certain that both the tube and its socket are identified. You will want your local radio service technician or marine supplier to check all tubes. Now carefully check each and every screw head and nut for tightness. Your engine produces a good deal of vibration, and chances are you will find several loosely mounted parts that need attention.

You can prevent further loosening of "nuts 'n bolts" by obtaining a small bottle of fungus varnish from a local radio supply company, and carefully cover each and every screw with a coat of fungus varnish. This serves two purposes: First, to lock the nut, and secondly to prevent corrosion

RADIO continued on next page



When cleaning your radiotelephone do not remove these connectors on the antenna-loading coil. Be sure stand-off insulators are on tight.



Dynamotor and all exterior surfaces deserve a good cleaning with a one-inch soft brush. Have tubes checked by your local radio serviceman.

Barney says

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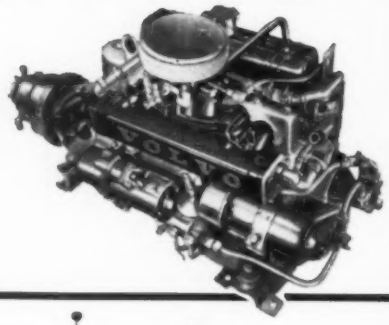

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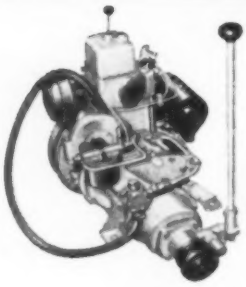

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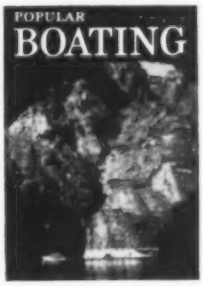


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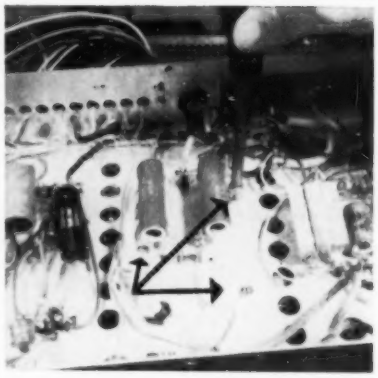


Spintite wrench is a handy tool for tightening all small nuts on chassis.

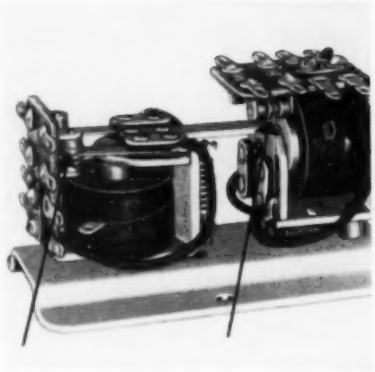
from salt air. After testing, replace all tubes in their proper sockets.

## TRANSMITTING SECTION

Tubes of larger size than those used for the receiver usually identify that part of the circuit. This section should be cleaned as was done for the receiver. Special attention should be given to the stand-off insulators (ceramic mounts) supporting the large antenna coil. These can work loose from vibration, and in some cases can actually detune the radiotelephone. Be sure the mounting screws are tight, but take care not to crack the insulators by over-tightening. A generous daub of varnish over and around the mounting screw heads (with a small part on the chassis) will act as a lock-nut to prevent further loosening.

Your radiotelephone probably uses at least one relay. You will discover that there is a hinged part containing the movable contacts. Cut a thin strip of writing paper and insert it between the fixed and moveable contacts. Close the contacts (by gently pushing them together) with the paper sandwiched in between and draw the strip back and forth to remove dust. If the contacts are pitted, then it will be necessary to use a very thin strip of ultra-fine sandpaper in the same manner —first to clean one contact, and then flopped over to clean the other. Do not use any abrasive except sandpaper, and use it sparingly at that, so as not to remove too much metal. Next, draw a thin strip of cloth over the contacts and dust away any remaining abrasive or metallic dust.

Your radiotelephone employs several crystals for frequency control. Remove *one at a time* and carefully polish the two wire lead contacts, then replace in its proper socket and move the crystal up and down several times to polish the connecting pins in the socket.



Typical relays show contacts that must be kept clean at all times.

Most tubes used in the transmitting portion are similar to radio power tubes and usually can be checked by competent dealer-establishments. Carefully mark each tube with a different symbol before removing. This is necessary because there is a slight difference in characteristics in tubes and, if interchanged, can detune the set. They must be returned to their original sockets.

All soldered connections may be thinly coated with fungus varnish. Don't permit any varnish to drip on any switch contact.

## THE POWER SUPPLY

Radiotelephones of low power generally employ a vibrator type high voltage supply. They can cause trouble and the vibrator should be removed and checked. We prefer to automatically replace this part each year. Vibrators can be very noisy things, and sometimes quite unreliable. Always carry a spare.

Latest designs now use power transistors.

The circuits in your radiotelephone are protected by fuses. These too become corroded and lose their effectiveness through age. Remove these and throw them away now so you won't be tempted to use them later. Replace with new ones of the same type and buy some extras to keep in the spare parts kit.

Radiotelephones like your author's Munston MRT65 and others of equivalent power usually use a dynamotor. It is a good idea to clean the brushes and the commutator on an annual basis. If you are not handy with things mechanical or electrical, we recommend that this job be done by your marine technician or a reliable electrical dealer. If the copper segments appear to be bright and shiny without signs of pitting, then a simple polishing

RADIO continued on next page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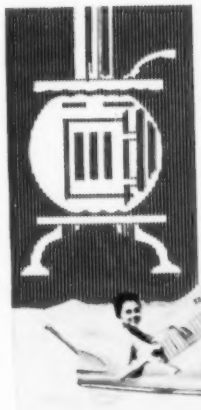

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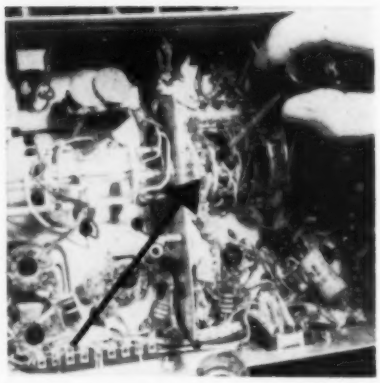

Apply small amount of fungus varnish to all soldered joints. Use care to prevent varnish dripping.

is all that is needed. The important thing to remember is not to use an abrasive which would change the contour of the brush contacts. If in doubt, do not try it!

## ANTENNA SYSTEM

Most skippers take their antenna system for granted. They fail to recognize the importance of good clean contacts and electrical continuity all the way from the tip of the antenna to the ground plate. Many antennas use a removable whip for the top section. This should be removed carefully, cleaned, and retightened before mounting on the boat. It is a good idea to protect such connections with plastic spray. This also applies to any antenna connection after it has been properly cleaned and secured. If the wire lead connecting to the antenna from the radiotelephone is frayed or if the insulation has become cracked, it must be replaced. One season at mooring in hot summer sun usually has its effect.

Before your radiotelephone is reinstalled, it is essential to go over all connections including the ground wire or copper strap. Every connection must be clean and secure and protected from bilge water and corrosion. Thru-hull fittings must be properly soldered to the copper ground plate. This plate, in case you have forgotten, should not be painted. Take a good look at insulators supporting your antenna. They should be as spotless as a clean dinner plate if possible. Replace them if they cannot be successfully cleaned or if they are cracked.

The wise skipper will make up a kit of spare components well ahead of boating season. He will have a full set of spare tubes, a vibrator, fuses, and owner's manual. Finally, he will make a mental note to call his licensed marine technician for a tune up before starting a new season.—OLIVER READ

## BULKHEAD BULLETINS

### BOAT SHOWS

Mar. 31-Apr. 5—**Long Beach, Calif.,** Boat and Vacation Show, Municipal Aud.

Apr. 3-7—**Houston, Tex.,** Houston National Boat & Sport Show, Sam Houston Coliseum

Apr. 11-19—**Dallas, Tex.,** Southwest Sports & Vacation Show, Auto. Bldg., Fair Pk.

Apr. 15-19—**Green Bay, Wis.,** Wisconsin Sports Show, Brown County Veterans Arena.

Sept. 27-30—**Las Vegas, Nev.,** International Marine Trade Show.

### AMERICAN POWER BOAT ASSOCIATION REGATTAS

REGION 3

July 4—**Mays Landing, N. J.,** I-SO
Aug. 22-23—**Beach Haven, N. J.,** I-SO
Sept. 5-7—**Millville, N. J.,** I-SO

REGION 6

July 4—**Algonac, Mich.,** I

REGION 7

Oct. 3-4—**Madison, Ind.** (Governor's Cup), U

REGION 9

Sept.—**Minden, La.,** O (date to be announced)

REGION 12

Dec. 21—**Newport Beach, Calif.** (M Outboard Hy. Championships) O-SO

REGION 13

July 11-12—**Valleyfield, Que.,** I-O

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June 14—**Larchmont Y. C.**
June 20-21—**Manhasset Bay Y. C.**
June 27—**Huguenot Y. C.**
June 28—**Sheldrake Y. C.**
July 4—**Larchmont Y. C.**
July 5—**Huguenot Y. C.**
July 11-12—**Orienta Y. C.**
July 18-19—**Larchmont Y. C.**
July 25—**Larchmont Y. C.**
Aug. 1-2—**Echo Bay Y. C.**
Aug. 8-9—**Port Washington Y. C.**
Aug. 15—**Huguenot Y. C.**
Aug. 16—**Morris Y. C.**
Aug. 22—**New York A. C.**
Aug. 23—**Horseshoe Harbor Y. C.**
Aug. 29-30—**Knickerbocker Y. C.**
Sept. 5—**Port Washington Y. C.**
Sept. 6—**Sea Cliff**
Sept. 7—**Larchmont Y. C.**
Sept. 12-13—**Manhasset Bay Y. C.**

DISTANCE RACES

May 16—**New York A. C.,** Stratford Shoal
May 23—**Larchmont,** 6-Mile Reef
May 29—**Storm Trysail,** Block Island:
May 29—**Huntington,** Tri-Club Regatta
June 6-7—**New York Yacht Club,** Day Races
June 13—(to be announced)
**June 20—Annapolis-Newport Race;**
June 20—**Bayside,** Point-No-Point
June 27—**Huntington** Day Race
July 4—**Riverside,** Stratford Shoal
July 11—**Indian Harbor,** Ocean Race
July 17-19—**Indian Harbor,** Annual Cruise
July 25—(to be announced)
**July 30-Aug. 8—New York Yacht Club Cruise**
Aug. 1—(to be announced)

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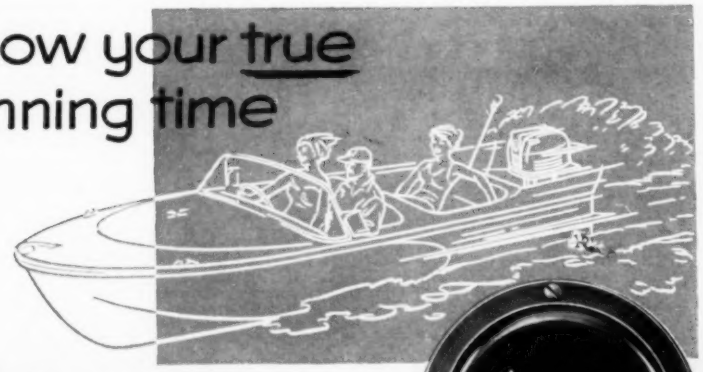

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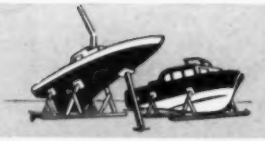

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